FIFTEENTH ANNUAL REPORT

OF THE

SANITARY COMMISSIONER

FOR

MADRAS,

1878.

WITH

APPENDICES

CONTAINING

VACCINATION REPORT, A PAPER ON THE INFLUENCE OF FAMINE ON THE GROWTH OF POPULATION, AND STATISTICAL TABLES OF THE GENERAL POPULATION.

MADRAS:
PRINTED BY E. KEYS, AT THE GOVERNMENT PRESS.

1879.

Digitized by Google

CONTENTS.

			Page
Introductory			1
Section I.—GENERAL POPULATION.			
Para.	1.	Influence of seasons on public health	*ib.*
	2.	Rainfall	*ib.*
	5.	Diagrams of rainfall	3
	6.	Prices of food	7
	14.	Diagrams of prices of food and death-rate	
		Registration of Vital Statistics	15
	21.	General Remarks	*ib.*
	ib.	Births	
	25.	Births in 1878 compared with former years	*ib.*
		Births in Famine and Non-Famine Districts	16
	36.	Deaths	18
	39.	Deaths in Famine and Non-Famine Districts	19
	40.	Deaths according to age	*ib.*
	43.	Deaths according to classes	20
	44.	Deaths in 1878 compared with former years	*ib.*
	48.	Deaths from principal diseases in 1878 compared with former years	21
Section II.—GENERAL HISTORY OF CHIEF DISEASES.			
	49.	Cholera	22
	57.	Cholera in Ganjam	23
	58.	Do. in Vizagapatam	25
	59.	Do. in Godavari	29
	60.	Do. in Kistna	32
	61.	Do. in Nellore	35
	62.	Do. in Chingleput	36
	63.	Do. in Madras	38
	64.	Do. in South Arcot	40
	65.	Do. in Trichinopoly	42
	66.	Do. in Tanjore	43
	67.	Do. in Madura	47
	68.	Do. in Tinnevelly	49
	69.	Do. in Kurnool	51
	70.	Do. in Cuddapah	53
	71.	Do. in Bellary	56
	76.	Do. in North Arcot	61
	77.	Do. in Salem	63
	78.	Do. in Coimbatore	65
	79.	Do. in Nilgiris	68
	80.	Do. in South Canara	*ib.*
	81.	Do. in Malabar	70
	85.	Do. in the Army	73
	ib.	European Troops	*ib.*
	84.	Native Troops	74
	85.	Cholera in Jails	75
	87.	Small-pox	77
	93.	Fevers	79
	99.	Bowel diseases	80
	100.	Injuries	*ib.*
Section III.—GENERAL HISTORY OF VACCINATION.			
	103.	General Remarks	81
	106.	Primary Vaccination in 1878 compared with former years	*ib.*
	109.	Vaccine Staff in 1878	*ib.*
	111.	Employment of Deputy Inspectors of Vaccination on sanitary work	82

Digitized by Google

			Page
Para.	112.	Travelling batta to Deputy Inspectors of Vaccination	82
	118.	Vaccine agency	83
	123.	Infant vaccination	*ib.*
	124.	Cost of the Vaccine Department in 1878	84
	125.	Inspections	*ib.*
	127.	Benefits hitherto derived from vaccination	85

SECTION IV.—MILITARY		86
	(REMARKS ON THE SICKNESS, &c., OF THE ARMY AND SANITARY WORKS.)	
	EUROPEAN TROOPS—	
138.	Strength, sickness, and mortality	86
140.	Do. do. do. compared with former years	*ib.*
142.	Principal Diseases—Small-pox	87
143.	Fevers	*ib.*
146.	Admissions and deaths from fevers compared with former years	*ib.*
147.	Cholera	*ib.*
148.	Apoplexy and sunstroke	*ib.*
149.	Venereal diseases	88
157.	Strength, sickness, and mortality among women	90
158.	Do. do. do. among children	92
	NATIVE ARMY—	
160.	Strength, sickness, and mortality	93
162.	Do. do. do. compared with former years	*ib.*
163.	Principal causes of sickness and mortality	94
164.	Fevers	*ib.*
165.	Venereal diseases	*ib.*
	(STATIONAL SICKNESS AND MORTALITY AND ABSTRACT OF SANITARY NOTES.)—	
167.	Bangalore	94
170.	Bellary	95
172.	Calicut	97
173.	Cannanore	98
174.	Chandah	99
175.	Cuttack	100
176.	French Rocks	101
177.	Hooshungabad	*ib.*
178.	Kamptee	102
180.	Madras (Fort St. George)	*ib.*
182.	Malliapuram	105
183.	Mangalore	106
184.	Mercara	107
185.	Moulmein	108
186.	Mysore	109
187.	Palamcottah	110
188.	Pallavaram	*ib.*
189.	Poonamallee	111
190.	Port Blair (Andamans)	112
191.	Quilon	113
192.	Rangoon	114
193.	Ramandroog	116
194.	Raipore	*ib.*
195.	St. Thomas' Mount	118
197.	Secunderabad	119
199.	Seetabuldee	120
201.	Shoyagheen	121
202.	Sambalpur	122
203.	Seroncha	123
204.	Tonghoo	124
206.	Thayetmyoo	125
207.	Trichinopoly	126
208.	Trichoor	127
209.	Vellore	128
210.	Vizagapatam	129
211.	Vizianagram	130
212.	Wellington	131

Digitized by Google

		Page
Section V.—CIVIL—Health of Prisoners in Jails and Abstract of Sanitary Notes of Municipalities and Local Fund Circles.		
Para. 214.	Health in Jails.—General Remarks on sickness and mortality	132
—	Increase and decrease of Jail population	*ib.*
215.	Strength, sickness, and mortality	133
216.	Comparison with former years	*ib.*
219.	Sickness, &c., of Central and District Jails compared	*ib.*
221.	Remarks on Principal Diseases	134
222.	Small-pox	*ib.*
223.	Fevers	*ib.*
224 & 225.	Dysentery and diarrhœa	134
226.	Dropsies	135
227.	Skin diseases	*ib.*
228.	Scurvy, atrophy, and anæmia	*ib.*
230.	Influence of Famine on Jail mortality	136
	Bellary	136
	Berhampore	136
	Calicut	136
	Chittur	136
	Coimbatore Central Jail	137
	Cuddalore	137
	Kurnool	137
	Madura	137
	Nellore	137
	Salem	137
	Tellicherry	137
	Trichinopoly Central Jail	137
	Trichinopoly District do.	137
	Do. Camp do.	137
	Vellore Central do.	137
	Do. Camp do.	137
	Vizagapatam	137
	Palghat	137
233 & 234.	Principal causes of sickness and mortality compared with former years ...	*ib.*
235.	Municipalities—Number of	139
236 to 239.	Population, births and deaths	*ib.*
240.	Principal diseases	*ib.*
241.	New form of Sanitary Report	*ib.*
242.	Remarks on Sanitary Progress	140
244.	Abstract of Sanitary Reports—	
244.	Adoni	140
249.	Anantapur	141
254.	Ankapulli	141
259.	Bellary	142
264.	Berhampore	142
269.	Bimlipatam	142
273.	Calicut	143
278.	Cannanore	143
283.	Chicacole	144
288.	Cocanada	144
293.	Cochin	145
298.	Coimbatore	145
303.	Chillumbram	146
308.	Combaconum	146
314.	Conjeveram	147
319.	Cuddapah	147
324.	Coonoor	148
329.	Carur	148
334.	Cuddalore	149
339.	Dindigul	149
344.	Ellore	150
349.	Erode	150
354.	Gooty	151
359.	Guntoor	151
364.	Kurnool	152
369.	Madura	152
374.	Mannargudi	153
379.	Mangalore	153
384.	Masulipatam	154
389.	Mayaveram	154
394.	Negapatam	155
399.	Nellore	155

Digitized by Google

		Page
Para. 404.	Ootacamund	156
409.	Ongole	
414.	Palghat	
419.	Palamcottah	157
424.	Rajahmundry	
429.	Salem	158
434.	Srirangam	159
439.	Tanjore	
444.	Tellicherry	160
449.	Tinnevelly	
454.	Trichinopoly	161
459.	Tuticorin	
464.	Vizagapatam	162
469.	Vizianagram	
474.	Wallajapet	163
479.	LOCAL FUND CIRCLES.—New form of Sanitary Report	166
480 to 482.	Estimated income and expenditure during 1878-79	*ib.*
483.	ABSTRACT OF SANITARY REPORTS—	
484.	Chetterpore Circle	
488.	Bellary	167
492.	Gooty	
496.	Canara	
500.	Saidapet	168
504.	Chingleput	
508.	Coimbatore	
512.	Ellore	169
516.	Cocanada	
520.	Masulipatam	
524.	Guntoor	170
528.	Kurnool	
532.	Madura	
536.	Tellicherry	171
540.	Chittur and Vellore Circles	
544.	Salem Circle	
548.	Oosoor do.	
552.	Cuddalore Circle	172
556.	Virdachellum do.	
560.	Tanjore do.	
564.	Tinnevelly do.	173
568.	Shermadavi do.	
572.	Vizagapatam do.	174
576.	Nilgiri do.	

SECTION VI.—GENERAL REMARKS—PERSONAL PROCEEDINGS.

580.	Imperial Census Committee	177
581.	Changes in the Vaccine Department	*ib.*
582.	Employment of Vaccine Inspectors as Sanitary Officers	*ib.*
584.	Compulsory vaccination generally approved of	*ib.*
585.	Famine Test Census	*ib.*
586.	Cinchona Committee	*ib.*
587.	Reports for Famine Commission	178
588.	Connection of Sanitary Department with Famine Administration	*ib.*
589 to 593.	Experience of the physical effects of famine on population recorded	*ib.*
594.	Health Officer for Madras	*ib.*
596.	Water-supply of Lawrence Asylum	179
597.	Observation on level of ground-water	*ib.*
598.	Village sanitation	*ib.*
602.	Inspections	180

APPENDIX I.—Annual Report of Vaccination for the year 1878 with Statements ... i—lxv
APPENDIX II.—Paper on the Influence of Famine on the Growth of Population ... lxvii—xci
APPENDIX III.—Vital Statistical Returns of the General Population ... xciii—cxii

Digitized by Google

FIFTEENTH ANNUAL REPORT

OF THE

SANITARY COMMISSIONER FOR MADRAS,

1878.

INTRODUCTORY.

Under instructions from the Right Honorable the Secretary of State for India, Despatch No. 118, Statistics and Commerce, 27th June 1878, and His Excellency the Viceroy and Governor-General in Council, 20th January 1879, No. 8, the Annual Sanitary Report, instead of as heretofore consisting of ten Sections, will be arranged as follows :—

Section I.—Rainfall, Prices of Food and Vital Statistics of General Population.

Do. II.—General History of Chief Diseases.

Do. III.—General History of Vaccination.

Do. IV.—Military, including observations on European and Native Armies and sanitary works.

Do. V.—Civil, including health of prisoners in jails and sanitary works and progress in Municipalities and Local Fund Circles.

Do. VI.—General remarks and personal proceedings of Sanitary Commissioner.

SECTION I.

GENERAL POPULATION.

RAINFALL.

Influence of Seasons on public health.

1. Although the general Meteorological conditions of the year are no longer required to be noticed in sanitary reports, it is essential if we would trace the circumstances influencing public health, that the rainfall and its influence on food production, should be distinctly referred to. On the seasonable and regular distribution of rain depends the production of food, and on the abundance and variety of food in the country, rests the health and prosperity of the people.

Rainfall.

2. For some years before the great famine period of 1877 the seasons had been irregular, and the rainfall unusually scanty. In 1877 the rainfall was irregularly distributed, most of it coming too late and in excessive amount for the ordinary dry crops. In 1878 the seasons had

Digitized by Google

not resumed their normal course. The south-west monsoon rains were later than usual, but on the whole quite up to the average in quantity. The rains of the north-east monsoon, on which the southern districts mainly depend, were almost a complete failure. On two occasions, in November and December, the clouds banked heavily over the Bay of Bengal, as if the usual rains were coming up, but on both occasions these clouds were diverted from their proper course by cyclonic storms and the rain that should have refreshed the southern portion of the Peninsula of India, fell in torrents where it was not wanted, viz., in the Godavari, Vizagapatam and Ganjam Districts, doing immense damage in local areas to standing crops.

As an immediate consequence of the unseasonable rain distribution, prices of food ceased to recede rapidly from the abnormal height attained in the famine period.

3. It is not easy to say what is the mean rainfall over the whole area of the Presidency from year to year. We have only 227 rain registering stations scattered over 137,569 square miles of country, but comparing the results of 1878 with the rainfall before and during the famine period, it would seem that the total rainfall in 1878 was in excess of that of any of the preceding 8 years.

Thus the mean rainfall of 227 registration stations was :—

	Inches.	Average Number of Rainy Days.
From 1870 to 1874 ...	47·85	60
In 1875	37·35	56
„ 1876	27·88	42
„ 1877	48·03	68
„ 1878	51·28	69

The means derived from the small number of registering stations scattered over so wide an area are of course not true means, but they indicate very fairly the general condition of the country in regard to excess or deficiency of rainfall from year to year.

4. Looking at the tabular returns of rainfall for each month, somewhat more in detail for the several districts, we find evidence that the south-west monsoon from June to October, on the rains of which so vast a portion of the population depend, was more abundant than usual. Tracing this monsoon from its appearance on the western coast, we find in South Canara a mean rainfall for the year of 178 inches, against 149 the average of five years. In Malabar 144 inches against an average of 117.

Looking also to the rain returns of the districts to the west of the Ghauts we find Bellary receiving 33 inches of rain against an average of 26, Cuddapah, 36 against 34, Kurnool 42 inches against 30, and Kistna 49 inches instead of 32.

The northernmost districts of Ganjam, Vizagapatam and Godavari, not only had a plentiful supply of rain during the south-west monsoon months, but the north-east rain clouds were diverted from their course and precipitated in part over these districts, the total rainfall in Ganjam for 1878 being 62 inches against an average of 44, in Godavari 61 inches against 40, and Vizagapatam 69 inches against 41.

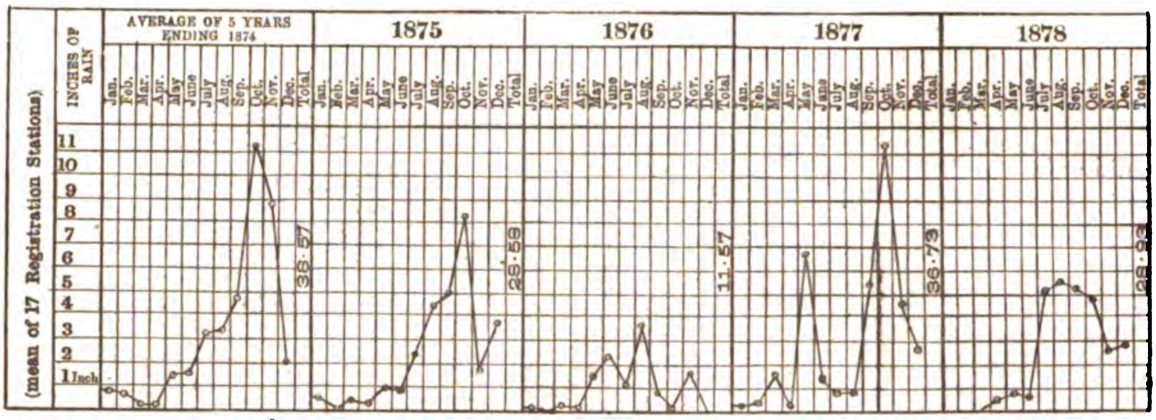
In the southern and central districts the south-west rain, though delayed somewhat, appears to have been generally above the average in quantity, but the north-east rains which usually come in November and December and fill the tanks of the Carnatic for paddy cultivation were almost a complete failure. The total rainfall therefore of the southern districts in 1878 was, on the whole, below the average, as will be seen from the following abstract :—

	Average of 5 years ending 1874.	In 1878.
Chingleput	53 inches	30 inches.
Madras	63 „	28 „
Nellore	38 „	28 „
North Arcot	43 „	37 „
South Arcot	46 „	34 „
Tanjore	46 „	32 „
Tinnevelly	24 „	22 „

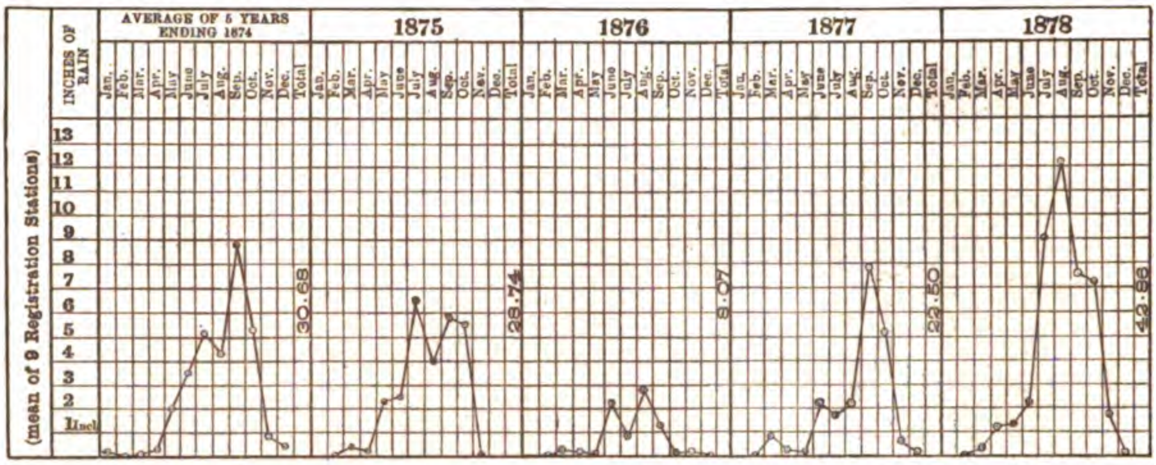
Digitized by Google

DIAGRAMS SHOWING THE RAINFALL IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878, COMPARED WITH AVERAGE OF 5 YEARS ENDING 1874.

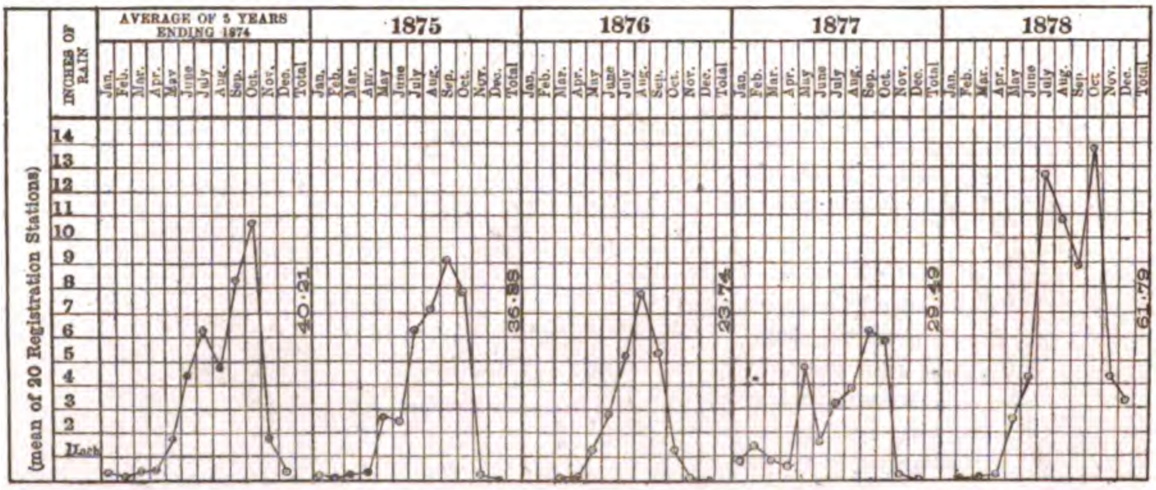
NELLORE



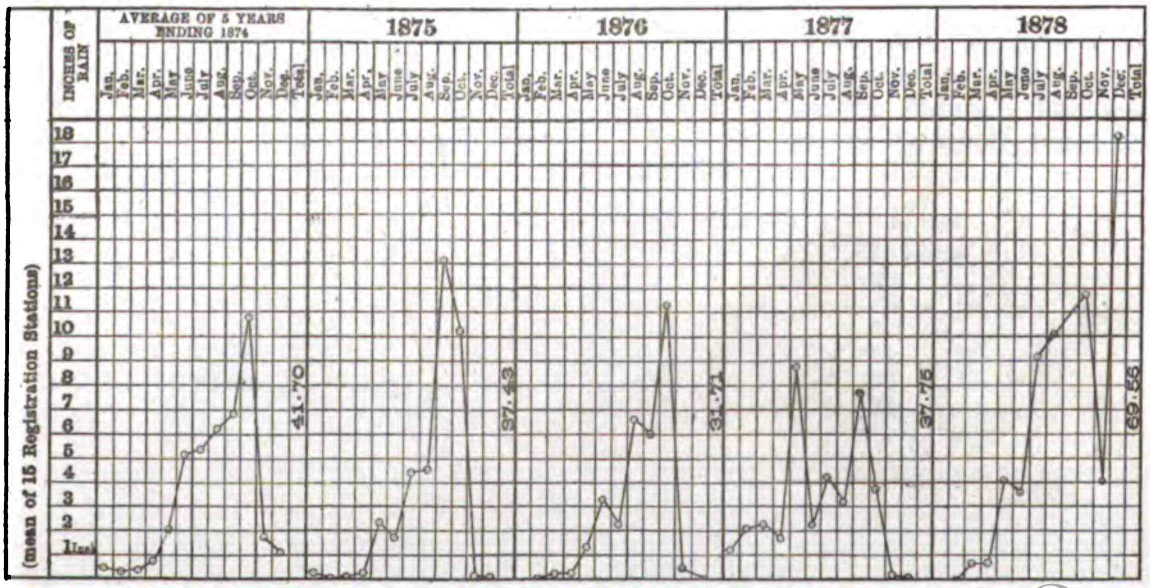
KURNOOL



GODAVARI



VIZAGAPATAM

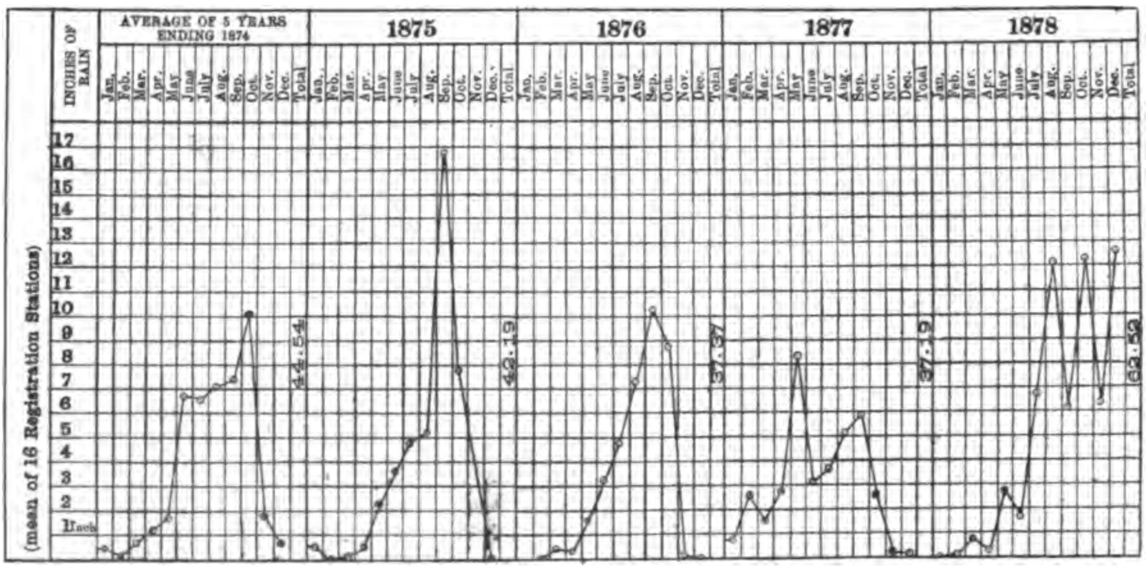


Digitized by Google

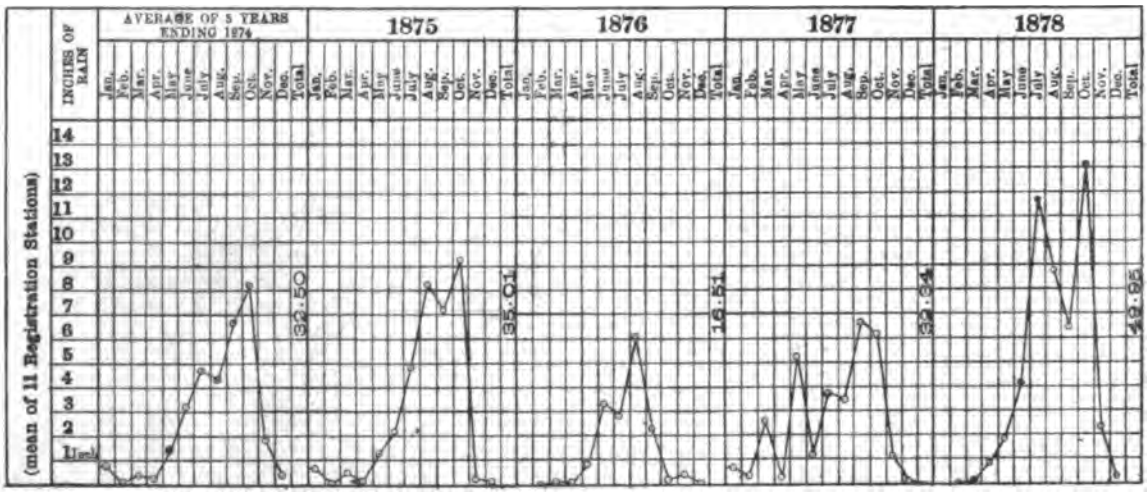
4

DIAGRAMS SHOWING THE RAINFALL IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878, COMPARED WITH AVERAGE OF 5 YEARS ENDING 1874.

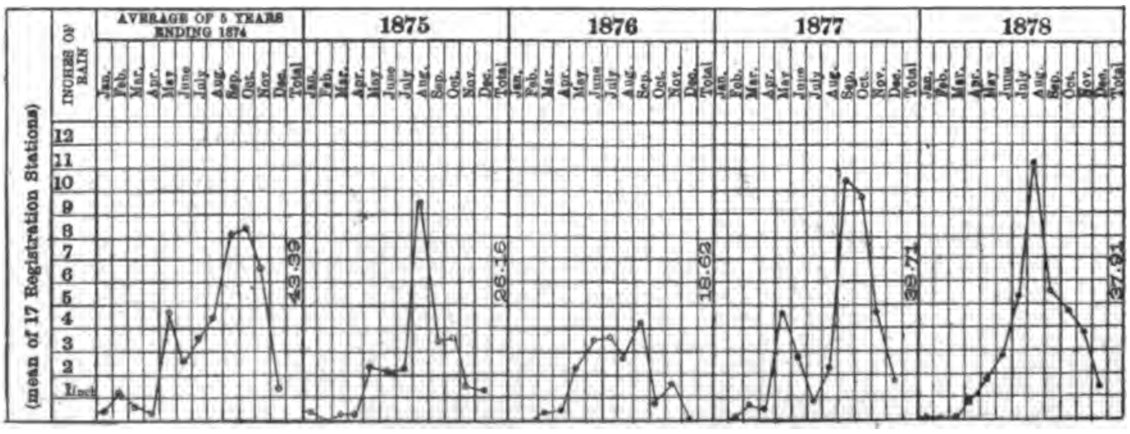
GANJAM



KISTNA



NORTH ARCOT

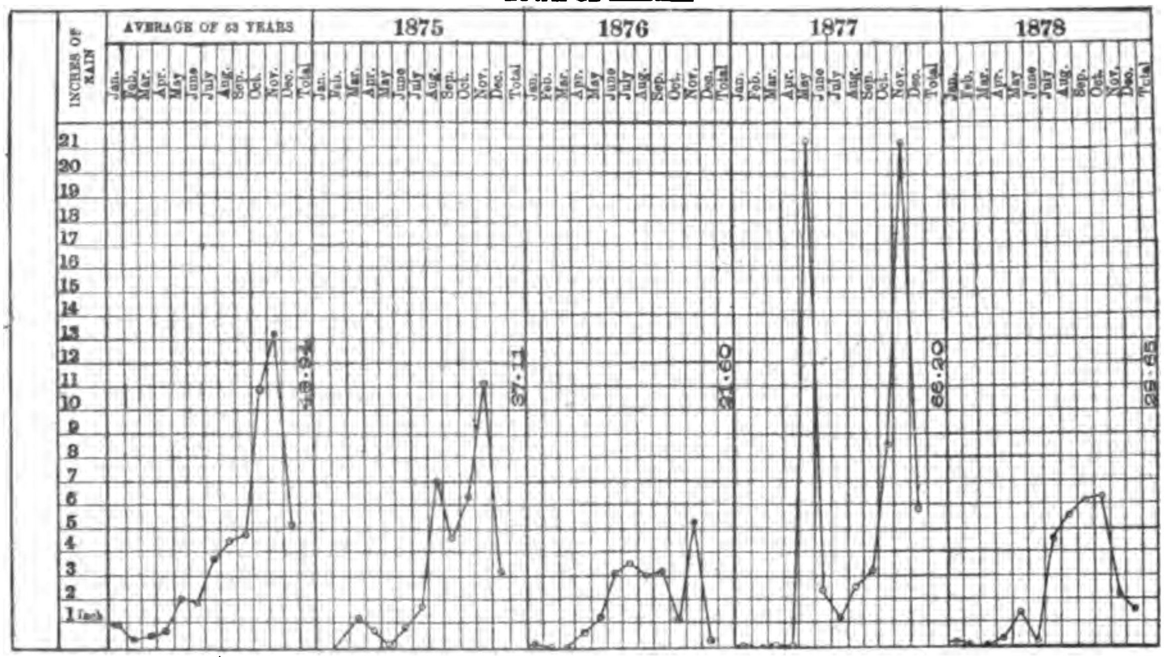


Digitized by Google

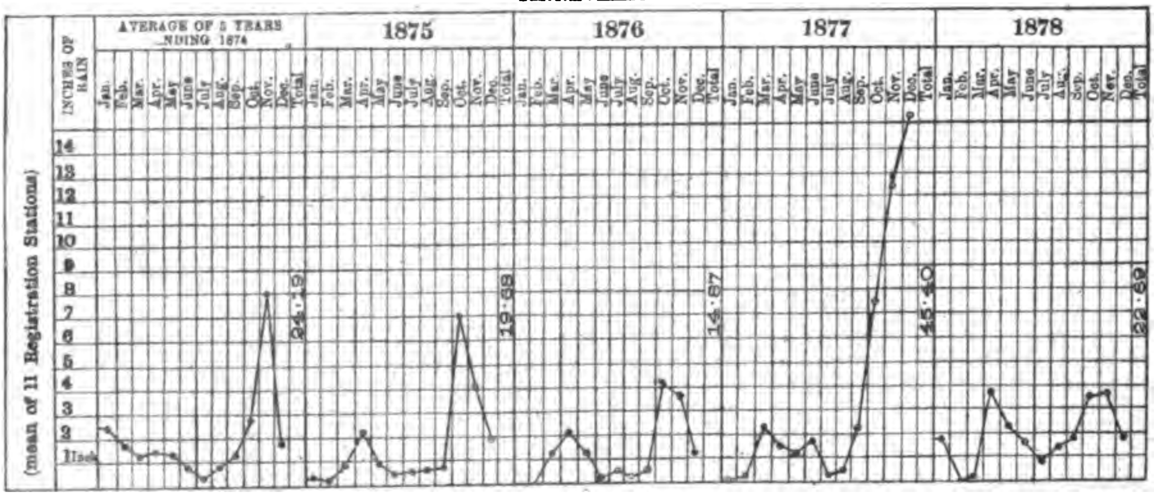
3

DIAGRAMS SHOWING THE RAINFALL IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878. COMPARED WITH AVERAGE OF 5 YEARS ENDING 1874.

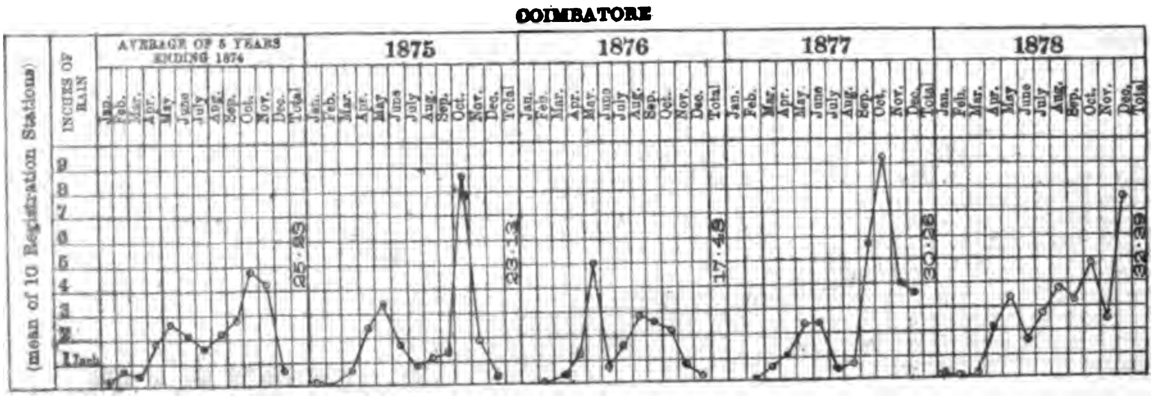
TOWN OF MADRAS



TINNEVELLY



COIMBATORE

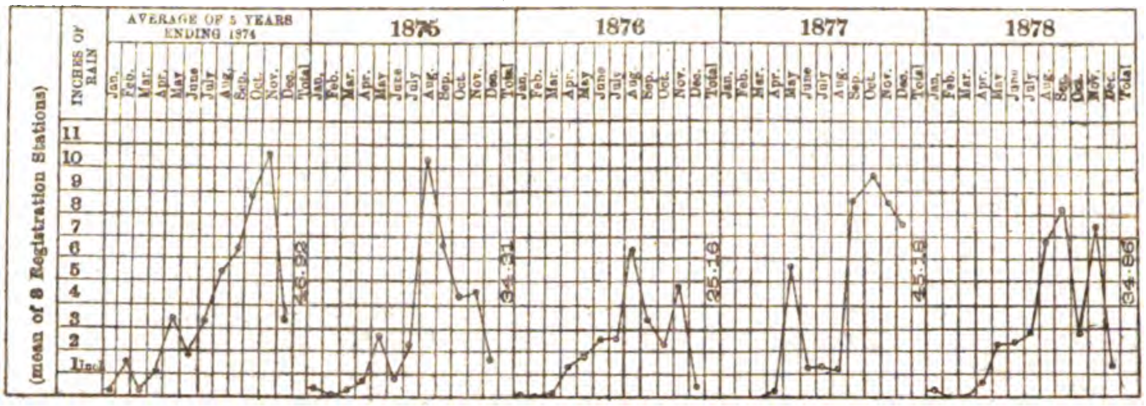


Digitized by Google

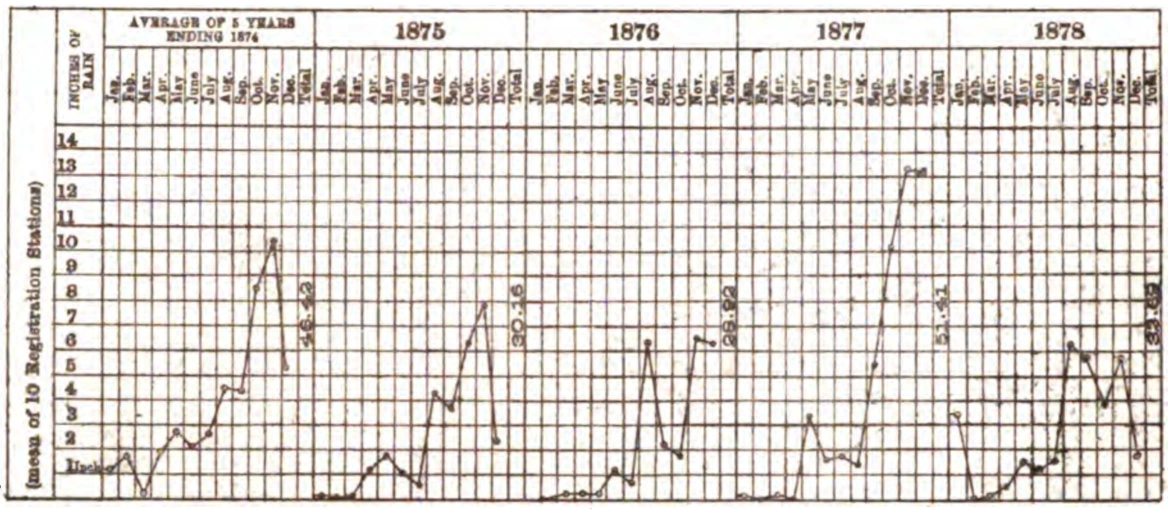
2

DIAGRAMS SHOWING THE RAINFALL IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878, COMPARED WITH AVERAGE OF 5 YEARS ENDING 1874.

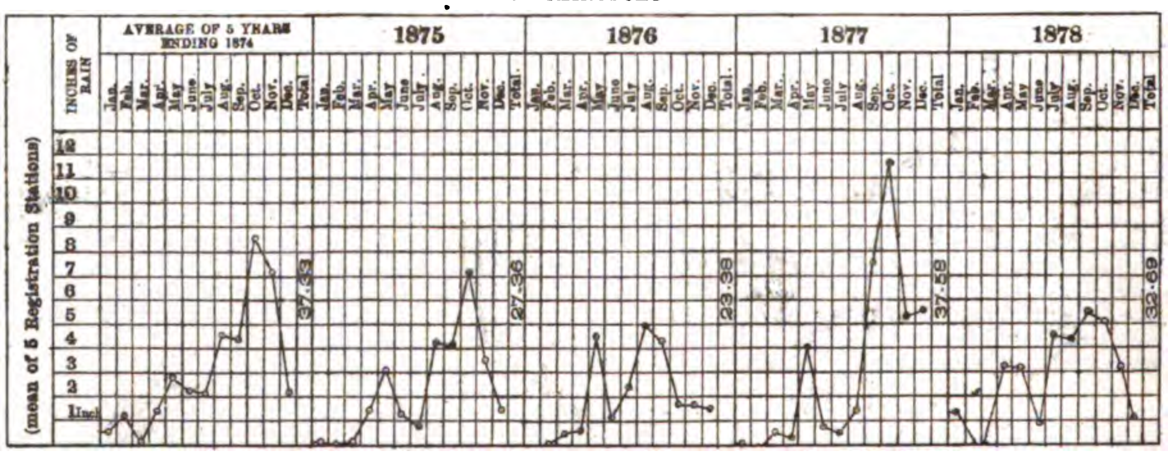
SOUTH ARCOT



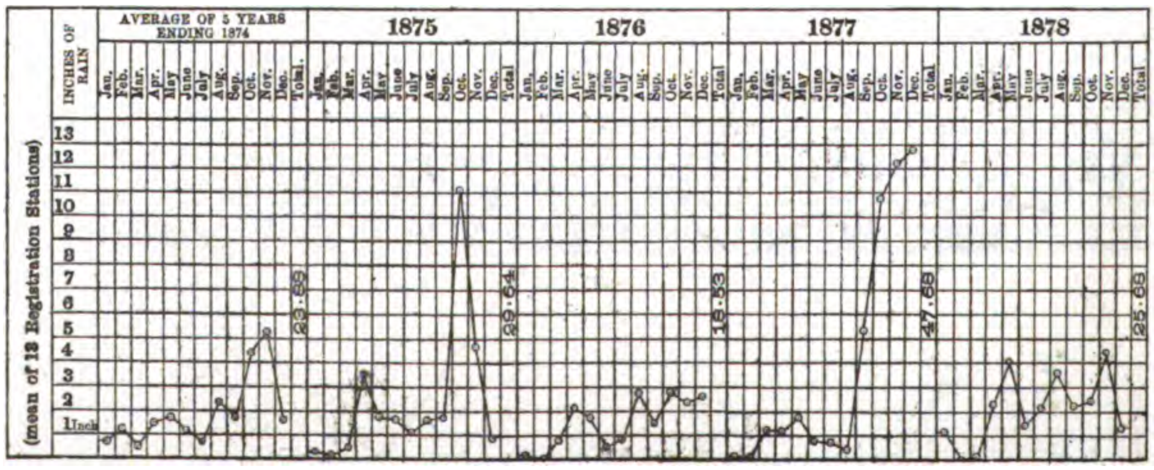
TANJORE



TRICHINOPOLY



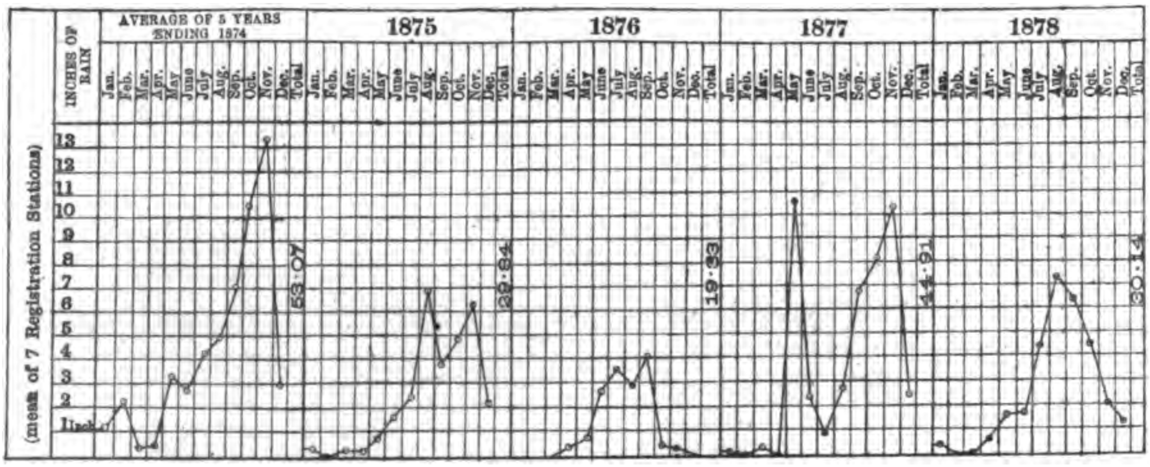
MADURA



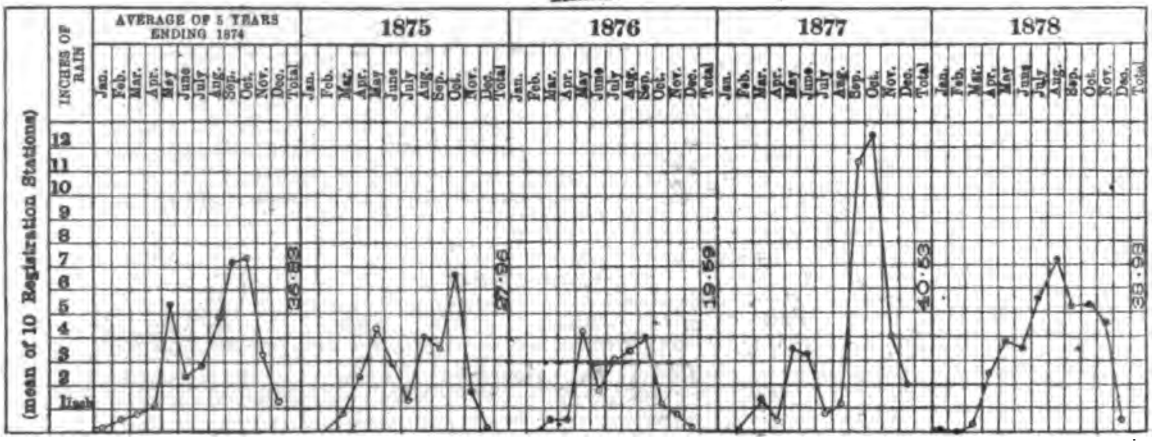
Digitized by Google

DIAGRAMS SHOWING THE RAINFALL IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878, COMPARED WITH AVERAGE OF 5 YEARS ENDING 1874.

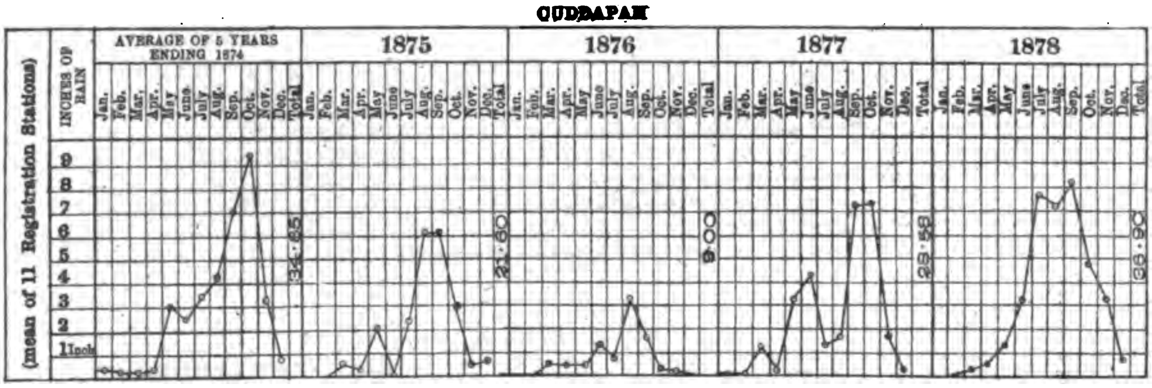
CHINGLEPUT



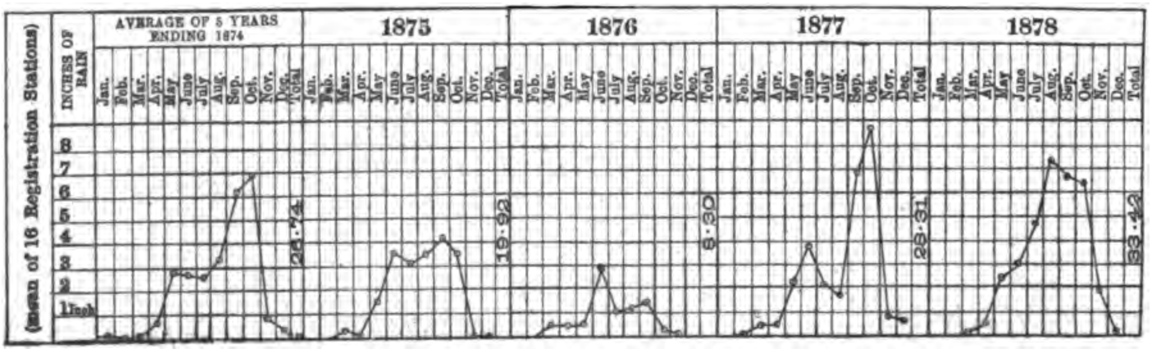
SALEM



CUDDAPAH



BELLARY



Digitized by Google

The deficiency in all these districts was connected with the later rains (north-east monsoon) in November and December.

5. Only broad deductions can be drawn in regard to the rainfall of a year, and the agricultural prosperity of the period. It is not so much the actual number of inches of rain as the suitable distribution of the moisture over the particular seasons of the year when the staple crops are usually grown, that causes plenty and prosperity.

Viewed in this aspect the year 1878 was not generally favorable to the farmer. The south-west monsoon was too slow in coming, and too heavy when it did come, and the north-east rains were trivial and disappointing.

The facts of the rainfall in the several districts, so far as they are known, are, by desire of His Grace the Governor in Council, again projected in diagrams showing the mean results up to 1878, and each year's rainfall from 1875 to 1878 separately. When a few more years' observations have accumulated it will be possible to draw curves of mean rainfall for each district either including or excluding the years coincident with famine cycles. A table also is given showing the mean of the rain registration for each month in the several districts.

Digitized by Google

Table showing the comparison of Monthly Rainfall in the Madras Presidency during 1875, 1876, 1877, *and* 1878, *with the Average of* 5 *Years ending* 1874.

Districts.		No. of places of Observations.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Total.	
			Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.
Bellary ...	Average of 5 years ...	16	0·08	...	0·01	...	0·06	...	0·62	2	2·86	5	2·80	6	2·68	7	3·41	7	6·22	10	6·89	9	0·86	2	0·25	1	26·74	49
	1875		...	...	...	...	0·33	2	0·11	...	1·56	5	3·59	6	3·08	7	3·54	6	4·08	7	3·59	6	0·03	...	0·01	...	19·92	39
	1876		...	...	...	...	0·47	1	0·42	1	0·48	1	2·96	5	1·03	4	1·19	4	1·47	3	0·22	1	0·06	...	...	...	8·30	21
	1877		...	...	0·01	...	0·40	1	0·52	2	2·16	3	3·86	7	2·15	5	1·78	5	6·93	13	8·82	13	0·93	1	0·75	1	28·31	51
	1878		...	...	...	...	0·05	...	0·63	2	2·45	5	3·02	5	4·81	10	7·36	12	6·73	11	6·88	8	1·93	3	0·06	...	33·42	56
Canara ...	Average of 5 years ...	5	0·99	...	0·21	...	0·16	...	1·19	2	9·77	5	39·50	26	49·05	30	21·47	24	15·31	21	9·54	14	1·79	4	0·28	1	149·26	127
	1875		...	...	...	...	0·09	...	0·59	1	2·14	5	31·07	26	40·17	30	25·15	27	10·80	19	3·58	6	0·79	2	0·19	...	114·57	116
	1876		...	...	...	...	0·98	2	1·51	4	1·19	5	34·90	23	49·05	30	20·81	30	7·34	16	0·76	2	0·59	1	0·05	...	117·18	118
	1877		...	...	0·01	...	...	...	1·29	3	1·20	6	41·28	26	23·71	28	33·92	29	19·20	22	11·98	22	1·48	4	0·92	1	134·99	141
	1878		...	...	...	...	0·02	...	1·70	2	6·06	8	45·21	25	31·52	25	48·13	28	31·96	29	10·67	14	1·87	4	1·47	2	178·61	137
Chingleput ...	Average of 5 years ...	7	1·05	1	2·11	1	0·32	...	0·49	...	3·22	2	2·72	5	4·22	9	4·99	9	7·04	8	10·60	10	13·32	12	2·99	4	53·07	61
	1875		0·20	1	0·20	1	0·24	1	0·24	...	0·85	2	1·68	4	2·50	4	6·95	11	3·80	5	4·99	9	6·26	8	2·13	5	30·04	51
	1876		...	...	...	...	...	...	0·44	1	0·78	3	2·66	5	3·69	9	2·94	6	4·07	5	0·45	1	4·30	4	...	...	19·33	34
	1877		0·16	1	...	...	0·40	...	...	...	10·80	4	2·31	5	0·93	3	2·73	8	6·86	10	8·09	11	10·33	11	2·50	4	44·91	57
	1878		0·39	...	...	...	0·01	...	0·58	...	1·63	3	1·73	4	4·26	9	7·34	13	6·46	9	4·56	5	2·00	4	1·18	3	30·14	50
Coimbatore.	Average of 5 years ...	10	0·26	...	0·67	1	0·49	1	1·89	3	2·77	5	2·14	5	1·78	5	2·36	4	2·95	6	4·94	9	4·37	7	0·61	2	25·23	48
	1875		0·09	...	0·09	...	0·67	1	2·48	4	3·51	6	1·88	5	0·95	4	1·18	3	1·30	4	8·81	13	1·98	5	0·28	1	23·13	46
	1876		...	...	...	...	0·41	1	1·22	4	5·00	7	0·60	2	1·56	5	2·96	5	2·64	4	2·12	4	0·83	3	0·14	1	17·48	36
	1877		...	...	0·01	...	0·59	1	1·06	2	2·32	5	2·40	6	0·39	2	0·64	3	5·85	10	9·25	13	4·00	8	3·75	6	30·26	56
	1878		0·13	...	...	...	0·01	...	2·06	2	3·55	6	1·59	4	2·85	8	3·98	9	3·18	8	4·90	8	2·44	6	7·70	2	32·39	58
Cuddapah ...	Average of 5 years ...	11	0·42	...	0·22	...	0·22	...	0·25	...	3·05	...	2·48	3	3·39	5	4·11	7	7·07	6	9·42	9	3·27	9	0·76	5	34·65	44
	1875		...	...	...	...	0·53	1	0·23	1	2·05	3	...	...	2·34	6	6·12	10	6·13	9	2·98	6	0·52	1	0·70	2	21·60	45
	1876		...	...	...	...	0·42	1	0·42	1	0·44	1	1·38	3	0·78	4	3·30	6	0·82	3	0·24	1	0·25	1	...	...	8·00	21
	1877		0·01	...	0·02	...	1·39	2	0·19	1	3·31	4	4·32	6	1·25	3	1·64	5	7·21	13	7·37	11	1·65	4	0·22	1	28·58	50
	1878		...	...	...	...	0·17	...	0·46	1	1·14	3	3·12	5	7·84	11	7·07	13	8·34	11	4·85	8	3·20	5	0·71	1	36·90	58
Ganjam ...	Average of 5 years ...	16	0·44	1	0·13	...	0·68	1	1·26	3	1·82	3	6·77	8	6·55	11	7·07	13	7·26	12	10·12	9	1·79	2	0·65	1	44·54	64
	1875		0·61	1	0·61	1	0·05	...	0·55	2	2·32	5	3·67	6	4·86	9	5·33	10	16·93	14	7·87	7	...	...	...	...	42·80	55
	1876		...	...	...	...	0·51	1	0·41	1	1·61	3	3·24	7	4·87	9	7·47	13	10·42	13	8·79	6	0·06	...	...	...	37·38	53
	1877		0·92	2	2·66	6	1·62	3	2·91	5	8·34	7	3·02	6	3·69	8	5·17	10	6·00	9	2·59	6	0·14	1	0·13	...	37·19	63
	1878		...	...	0·12	...	0·85	2	0·37	1	2·88	6	1·81	3	6·87	14	12·23	14	6·17	12	12·42	11	6·22	7	12·58	5	62·52	75
Godavari ...	Average of 5 years ...	20	0·32	...	0·20	...	0·42	...	0·44	1	1·82	3	4·53	6	6·36	11	4·69	7	8·39	11	10·84	11	1·75	2	0·45	1	40·21	53
	1875		0·12	1	0·08	...	0·18	...	0·24	...	2·82	5	2·75	5	6·20	10	7·23	10	9·09	13	7·91	7	0·26	...	...	...	36·88	52
	1876		...	...	...	...	0·03	...	0·04	...	1·20	3	2·88	6	5·16	9	7·81	10	5·29	6	1·27	2	0·06	...	...	...	23·74	35
	1877		0·94	2	1·40	3	0·94	2	0·48	1	4·83	4	1·66	4	3·12	6	3·95	8	6·17	10	5·85	9	0·14	...	0·01	...	29·49	48
	1878		...	...	...	...	0·07	...	0·82	1	2·66	4	4·30	5	12·74	16	10·83	16	8·98	12	13·88	13	4·22	4	3·34	2	61·79	73

Digitized by Google

Kistna ...	Average of 5 years ...	11	0·87	...	0·06	...	0·80	...	0·24	...	1·51	3	3·16	6	4·82	10	4·32	9	6·67	11	8·35	10	1·89	3	0·81	1	33·50	53
	1875		0·63	1	...	...	0·55	1	0·09	1	1·26	2	2·12	6	4·96	12	8·38	12	7·24	11	9·45	8	0·22	1	0·11	1	35·01	55
	1876		...	...	...	...	0·06	...	0·05	...	0·89	2	3·48	6	2·92	7	6·01	13	2·42	5	0·24	1	0·44	1	...	...	16·51	35
	1877		0·70	2	0·48	1	2·70	3	0·26	1	5·23	3	1·16	3	3·86	5	3·76	8	6·76	11	6·26	10	1·06	1	0·11	1	32·34	49
	1878		...	...	...	...	0·08	...	0·99	1	1·98	4	4·13	7	11·79	17	8·96	15	6·45	10	13·08	13	2·34	5	0·20	1	49·96	78
Kurnool ...	Average of 5 years ...	9	0·16	...	...	...	0·03	...	0·32	...	2·01	4	3·46	7	5·11	10	4·23	8	8·87	10	5·20	9	0·89	2	0·40	1	30·68	51
	1875		...	...	...	...	0·37	1	0·15	1	2·25	2	2·44	6	6·40	10	4·00	7	5·88	8	5·45	6	...	...	...	...	28·74	41
	1876		...	...	...	...	0·32	1	0·28	1	0·07	...	2·19	4	0·87	3	2·89	6	1·28	3	0·06	0	0·16	...	...	...	8·07	18
	1877		...	...	...	...	0·90	2	0·27	1	2·33	3	2·20	4	0·81	3	3·23	6	7·97	12	5·15	8	0·56	1	0·09	...	22·50	40
	1878		...	...	...	...	0·34	...	1·21	1	1·35	3	2·33	5	8·99	14	12·23	16	7·59	13	7·15	12	1·64	4	0·08	...	42·86	68
Madras ...	Average of 5 years ...	1	1·40	2	1·32	2	0·58	1	0·61	1	2·49	2	3·63	11	5·14	15	4·40	14	6·37	13	15·92	16	17·33	17	4·62	7	63·81	101
	1875		...	...	...	...	1·18	1	0·76	1	0·07	2	0·86	5	1·76	12	7·04	13	4·60	14	6·47	17	11·19	16	3·18	12	37·11	93
	1876		0·12	1	...	...	...	...	0·71	1	1·19	5	3·10	14	3·77	16	3·00	13	3·26	9	1·04	6	5·80	5	0·11	3	21·60	73
	1877		0·01	1	...	...	0·03	1	...	...	21·27	6	2·36	9	1·22	9	2·49	19	3·15	13	8·56	14	21·25	17	5·86	9	66·20	98
	1878		0·11	3	...	...	...	...	0·34	2	1·60	5	0·12	5	4·80	12	5·62	17	6·07	16	6·26	11	2·10	10	1·63	8	28·65	89
Madura ...	Average of 5 years ...	13	0·37	2	1·22	3	0·47	1	1·67	3	1·80	3	1·19	2	0·82	2	2·62	5	1·87	4	4·34	8	5·36	9	1·65	3	22·38	45
	1875		0·21	...	0·10	...	0·57	1	3·59	5	1·93	2	1·85	3	1·02	2	1·70	3	1·84	3	11·15	14	4·73	8	0·95	2	29·64	43
	1876		0·07	...	...	...	0·90	1	2·11	2	1·68	5	0·51	2	0·88	2	2·85	5	1·58	3	2·90	5	2·49	5	2·61	3	18·53	33
	1877		0·02	...	0·01	...	1·27	2	1·25	2	1·84	4	0·83	2	0·82	2	0·39	2	5·31	8	10·88	12	12·21	15	12·85	10	47·68	59
	1878		1·13	2	...	...	0·07	...	2·44	3	4·08	5	1·50	3	2·18	4	3·69	6	2·28	4	2·49	6	4·45	7	1·87	3	25·68	43
Malabar ...	Average of 5 years ...	15	0·73	1	0·45	1	0·61	1	3·56	6	9·96	11	34·38	25	33·20	24	11·84	19	9·37	16	8·57	13	3·53	6	0·86	2	117·06	125
	1875		0·05	...	...	...	0·45	1	2·90	3	4·73	7	33·81	25	30·12	30	11·40	20	4·98	13	6·09	11	1·88	3	0·40	1	96·81	114
	1876		...	...	0·01	...	1·94	4	1·74	4	2·28	6	21·84	23	37·49	30	12·23	22	5·63	9	2·41	5	1·15	3	0·07	1	86·79	107
	1877		...	...	0·14	1	0·54	2	2·68	6	4·78	10	39·62	26	10·97	22	25·31	25	14·90	19	19·57	23	4·07	7	2·30	5	124·88	145
	1878		0·01	...	...	...	0·92	1	3·52	6	6·93	9	35·60	24	22·05	20	33·06	26	24·24	27	12·40	17	4·37	9	1·38	4	144·48	143
Nellore ...	Average of 5 years ...	17	0·84	1	0·68	...	0·14	...	0·12	...	1·58	2	1·55	3	3·16	6	3·26	5	4·78	7	11·65	9	8·82	7	2·04	2	38·57	42
	1875		0·58	1	0·04	...	0·37	1	0·20	1	0·99	2	0·83	3	2·44	6	4·43	8	5·02	8	8·16	6	1·80	3	3·72	5	28·58	44
	1876		0·01	...	...	...	0·12	...	0·04	...	1·34	3	2·39	4	1·08	3	3·90	6	0·90	2	0·24	1	1·55	3	...	...	11·57	22
	1877		0·19	1	0·36	1	1·66	2	0·17	1	6·70	3	1·63	3	0·89	2	0·95	3	5·53	10	11·34	11	4·62	5	2·69	4	36·73	46
	1878		...	...	...	...	...	...	0·53	1	0·97	2	0·71	2	5·11	10	5·74	11	5·37	9	4·92	9	2·65	5	2·98	4	28·93	53
North Arcot.	Average of 5 years ...	17	0·44	...	1·23	...	0·61	...	0·34	1	4·90	3	2·62	5	3·71	7	4·45	8	8·33	9	8·69	10	6·71	8	1·36	3	43·39	54
	1875		0·32	...	0·32	...	0·22	...	0·18	1	2·32	5	2·10	4	2·22	5	9·30	13	3·40	6	3·55	7	1·30	4	1·25	4	26·48	49
	1876		...	...	...	...	0·10	...	0·22	1	2·22	5	3·28	7	3·37	7	2·78	6	4·17	6	0·80	3	1·68	4	...	...	18·62	39
	1877		...	...	0·01	...	0·61	1	0·41	1	4·49	5	2·88	5	0·91	2	2·42	5	10·39	14	9·93	12	4·89	8	1·77	3	38·71	56
	1878		0·01	...	...	...	0·05	...	0·94	1	1·68	4	2·95	4	5·49	9	11·27	14	5·60	9	4·91	7	3·76	5	1·26	3	37·91	56
Salem ...	Average of 5 years ...	10	0·13	...	0·49	1	0·62	1	1·05	2	5·45	5	2·28	5	2·96	6	4·92	8	7·24	10	7·33	9	3·14	6	1·22	13	36·83	66
	1875		...	...	...	...	0·81	1	2·33	3	4·41	8	2·99	4	1·39	3	4·02	6	3·58	5	6·64	9	1·67	3	0·12	...	27·96	42
	1876		...	...	...	...	0·56	1	0·53	2	4·18	7	1·75	3	3·00	5	3·56	6	4·02	5	1·10	2	0·80	2	0·09	...	19·59	35
	1867		...	...	...	...	1·42	2	0·55	1	3·46	7	3·22	5	0·78	2	1·09	4	11·37	15	12·58	16	4·01	6	2·05	4	40·58	62
	1878		0·12	...	...	...	0·35	...	2·47	2	3·92	6	3·70	5	5·71	9	7·25	11	5·25	10	5·26	7	4·49	5	0·56	1	38·98	56
South Arcot.	Average of 5 years ...	8	0·26	...	1·68	1	0·22	...	1·01	...	3·44	3	1·98	4	3·34	6	5·50	8	6·51	9	8·97	10	10·67	11	3·39	4	46·92	55
	1875		0·39	1	0·39	1	0·11	...	0·79	1	2·91	5	0·87	2	2·21	4	10·16	12	6·53	8	4·26	7	4·87	9	1·71	4	34·70	54
	1876		0·01	...	...	...	0·04	...	1·27	1	1·81	4	2·49	4	2·53	7	6·18	10	3·27	5	2·21	3	4·89	5	0·46	1	35·16	40
	1877		...	...	...	...	...	...	0·11	...	6·59	5	1·36	4	1·38	4	1·29	5	8·50	13	9·84	12	8·52	11	7·59	9	45·18	63
	1878		0·32	...	...	...	...	...	0·75	1	2·23	3	2·35	3	2·97	6	6·64	12	8·04	9	2·81	4	7·47	7	1·28	4	34·86	49

Digitized by Google

Table showing the Comparison of Monthly Rainfall in the Madras Presidency during 1875, 1876, 1877, *and* 1878, *with the Average of* 5 *Years ending* 1874—(Continued).

Districts.		No. of places of Observations.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Total.	
			Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.
Tanjore ...	Average of 5 years ...	10	1·23	2	1·79	2	0·21	...	1·99	2	2·92	2	2·05	3	2·75	5	4·61	9	4·46	9	8·63	11	10·62	13	5·16	9	46·42	67
	1875		0·09	...	0·08	...	0·11	...	1·23	3	1·88	3	1·00	3	0·85	2	4·53	7	3·74	7	6·51	11	7·99	13	2·20	4	30·16	54
	1876		...	...	...	...	0·30	1	0·30	...	2·84	5	1·06	3	0·76	2	6·37	11	2·18	3	1·87	4	6·72	6	6·52	5	28·92	40
	1877		0·19	1	...	...	0·08	...	...	...	3·58	3	1·41	2	1·88	5	1·16	4	5·71	9	10·39	11	13·55	16	13·46	12	51·41	63
	1878		3·40	3	...	...	0·08	...	0·66	2	1·73	3	1·21	2	1·80	4	6·21	10	5·87	9	3·94	7	5·93	7	1·86	3	32·69	50
Tinnevelly.	Average of 5 years ...	11	2·49	3	1·81	3	1·20	2	1·55	3	1·39	3	0·79	2	0·32	1	0·74	2	1·13	2	2·85	6	8·06	11	1·86	4	24·19	42
	1875		0·21	...	0·14	1	0·92	2	2·22	3	0·90	2	0·42	1	0·46	2	0·57	1	0·64	2	7·06	11	4·18	8	1·95	3	19·68	37
	1876		...	...	...	...	1·15	2	2·05	3	1·27	2	0·12	1	0·48	1	0·26	1	0·56	2	4·16	7	3·66	5	1·16	3	14·87	28
	1877		0·01	...	0·18	1	2·28	3	1·55	4	1·14	3	1·75	3	0·19	1	0·57	3	2·17	5	7·58	12	12·69	17	15·29	12	45·40	65
	1878		1·83	3	...	...	0·18	...	3·67	5	2·23	4	1·64	4	0·93	3	1·48	3	1·91	4	3·40	5	3·51	10	1·91	4	22·69	45
Trichinopoly	Average of 5 years ...	5	0·67	1	1·14	2	0·07	...	1·39	2	2·93	4	2·15	3	2·09	3	4·55	6	4·35	6	8·59	12	7·07	10	2·33	4	37·33	53
	1875		0·22	1	...	...	0·10	...	1·53	2	3·14	5	1·30	3	0·78	2	4·20	7	4·16	7	7·08	12	3·65	9	1·20	3	27·36	51
	1876		...	...	...	...	0·45	1	0·60	1	4·41	7	1·08	2	2·54	2	5·00	8	4·14	5	1·85	4	1·86	3	1·45	3	23·38	36
	1877		0·01	...	...	...	0·51	1	0·15	...	4·08	7	0·88	3	0·42	2	1·29	3	7·69	11	11·77	16	5·29	10	5·49	11	37·58	64
	1878		1·53	1	...	...	...	...	3·22	4	3·18	6	0·97	1	4·67	7	4·33	7	5·58	8	5·01	9	3·15	4	1·05	3	32·69	50
Vizagapatam	Average of 5 years ...	15	0·53	1	0·33	...	0·31	...	0·92	1	2·04	3	5·14	7	5·51	8	6·28	9	6·99	10	10·75	9	1·85	2	1·10	1	41·70	62
	1875		0·23	1	...	...	0·07	...	0·27	1	2·45	5	1·88	4	4·45	7	4·61	6	13·09	13	10·30	9	0·06	...	0·02	...	37·43	56
	1876		...	...	...	...	0·19	1	0·15	...	1·49	3	3·30	5	2·22	6	6·63	11	6·02	10	11·29	4	0·42	1	...	...	31·71	41
	1877		1·13	2	2·05	5	2·33	2	1·74	3	8·85	6	2·19	4	4·39	9	3·31	7	7·72	10	3·88	7	0·11	1	0·05	...	37·75	56
	1878		...	...	...	...	0·73	1	0·76	1	4·07	7	3·75	4	9·23	13	10·08	15	6·77	13	11·69	11	4·08	5	18·45	5	69·56	75
Total ...	Average of 5 years ...	227	0·71	1	0·78	1	0·38	...	1·04	1	3·38	3	6·26	7	7·85	9	5·49	9	6·56	9	8·61	10	5·65	7	1·61	3	47·85	60
	1875		0·19	...	0·02	...	0·39	1	1·03	2	2·22	4	4·85	6	5·96	8	6·49	10	5·84	9	6·59	9	2·64	5	1·006	2	37·35	56
	1876		0·01	...	0·005	...	0·45	1	0·72	1	1·82	4	4·76	6	6·40	8	5·40	9	3·62	6	2·20	3	1·86	3	0·63	1	27·88	42
	1877		0·21	1	0·36	1	0·98	2	0·78	2	5·35	5	6·01	7	3·19	6	4·80	8	7·77	12	9·08	12	5·57	7	3·89	5	48·03	68
	1878		0·44	1	0·006	...	0·19	...	1·40	2	2·81	5	6·08	6	7·83	11	10·67	13	8·14	11	7·04	9	3·59	6	3·05	3	51·28	67

PRICES OF FOOD.

6. The remarks in reference to rainfall will have shown that food production during 1878 could not have attained its normal proportions. Apart from the general consideration that the revenue returns for 1876-77 showed a decrease of about four millions of acres in the cultivated area, it is quite certain that food production could not have caused a rapid fall in the rates prevailing during the famine time. Not only was the rain irregular in 1878, excessive in some places and scanty in others, but the ordinary food crops were subjected to blights and destruction by locusts and grasshoppers to an unusual extent.

7. The market prices of food-grains are taken from the average rates in the chief towns of the districts, and the monthly averages are struck from the weekly statements officially forwarded by district authorities to Government. These rates, no doubt, show the money value of the several grains with fair accuracy, but in regard to the agricultural classes who form about three-fourths of the whole population, it is necessary to bear in mind, that money values of food-grains have but little significance, so long as the land yields a sufficiency of food for the cultivator's family, and for the food-wages of his hired laborers.

8. If we look to the actual market prices of the staple food-grains during 1878 we shall find that the rates were practically famine-rates throughout the year. As a rule, the millets which are used by five-sixths of the people continued at more than double their ordinary price, and the tendency to decline in prices until nearly the end of the year was scarcely observable. While these famine-rates of food-grains continued throughout the year, neither the gross mortality nor the actual condition of the people indicated that the population as a whole were suffering in anything like the degree they did in 1877. On the contrary, there was a visible and manifest improvement in the physical condition of the great mass of the people throughout the year, although in a few districts, when prices hardened in May, June, and July, there was a decided addition to the number of applicants for famine relief, and an increase in mortality resulting from insufficient food.

9. It is necessary, therefore, to a full understanding of the circumstances of the people, that we should consider how it happened that the effects of famine on a large scale began to wane, in the face of the persistence of famine prices of food.

The immediate effect of a famine, such as that of 1877, is the exhaustion of local grain stocks, whether in the hands of merchants or of private individuals. In regard to the great bulk of the cultivating classes, we know that their habit is to put aside enough grain for their family wants and for payment to laborers. This portion of the crop never finds its way into traders hands at any time. Immediately after a famine the domestic stocks must have been very low. The cultivators had received a great scare, and their first efforts would be given to the replenishment of domestic stocks. Hence in the early crops of the season following a famine there would be little, if any, surplus food sold, and the dealers in grain having only limited quantities to trade with would be able to manipulate the markets to suit their own ends.

Meanwhile, the agricultural population would be using their customary quantities of grain, notwithstanding the famine prices prevailing in open markets.

10. I am quite satisfied from a close study of the actual conditions that this is the true explanation of the fact that in 1878 the bulk of the population inhabiting the famine area of 1877 showed but little evidence of suffering from insufficient food supplies. The ryots had been able to grow enough food for home consumption, and to pay their hired laborers, and partly to replenish stocks, but they had no surplus large enough to influence market prices in addition.

11. But while the bulk of the people in 1878 were able to get sufficient sustenance, it must not be forgotten that there survived from the famine period of 1877 a great number of persons whose constitutions had been so severely shaken by chronic insufficiency of food, that their ultimate recovery was hopeless, and consequently the death rate in 1878, especially in those parts of the country where famine had been severe, continued largely in excess of the average, while the children born were remarkably few in number.

Digitized by Google

12. It was remarkable in many districts, when food prices began to rise in June, July and August 1878, to find that the poorer classes at once began to show the effects of the tightening prices in their increasing application for admission on relief works, and in the steady rise of mortality from diseases of innutrition.

In my report for 1877 I first drew attention to the fact of the close relation of prices of food and mortality of the population.

Such a comparison, I believe, has never been made before, and the materials for making it, on such a grand scale of contrast, were never available until the food dearth of 1877 sent up prices to three or four times their usual average. The diagrams illustrating the connection between prices of food and mortality have been continued to exhibit the results for the year 1878, and I think we are now in a position to deduce many valuable conclusions, as to the real bearing of the question of cost of food on mortality.

13. This point is not outside the scope of a public health official's duties. The causes of disease and mortality have to be investigated, and if want of food be demonstrated a primary and determining factor of sickness and death, it is within the province of a public health official to take account of this, as of all other disease factors.

Diagrams of prices of food and death-rate.

14. In regard to the diagrams showing food-prices and mortality, I have taken the chief staple grains of the several districts for comparison with the death-rates; I might have given separate curves for each important grain or pulse, but the result would have been practically the same, as in every district, every variety of human food underwent a corresponding increase in price during the famine period. By keeping a single line for the principal food staple the comparison with the mortality curve is better made out. If a fair average for all grains could have been struck the food curve would have shown more regular progressions. From a general view of these district diagrams it is evident that so long as food-prices do not rise beyond a certain average rate, there is no very marked correspondence between prices and mortality. Speaking broadly for the whole country, ratios of mortality only began to follow the ascending food curve in the latter months of 1876, when the common food-grains had about doubled their normal prices. A considerable variation in prices of food within limits may occur, without the public health or the mortality tables showing any evidence of pressure on the poor. It is a point of some practical importance to ascertain what those limits are.

15. It would seem then that with rice at from 30 to 40 lbs. per rupee, in ordinary years, there is no relation between mortality and the lower and higher price, but when the price rises from one and a half to two rupees for the 30 lbs. there is a distinct correspondence between the mortality rates and the advancing prices of food. The commoner food staples of ragi, cholum, and cumboo, in ordinary years are sold at from 60 to 80 or 90 lbs. the rupee, but when the prices of these grains rise so as to permit of the purchase of only from 30 to 40 lbs. per rupee, such a rate cannot long be maintained without a corresponding rise in mortality.

16. With all descriptions of food, the diagrams show a close relation between the sudden rise of provisions presaging a famine, and sudden rise of mortality. The correspondence is too general to be due to any other cause but privation of large masses of the population. The decline in food prices after a famine, I have already explained, is not quite a natural decline. Prices remain artificially high, after the great bulk of the cultivating classes enjoy enough to eat, and consequently the diagrams do not in all cases show so exact a correspondence between decline in prices and decline in mortality. But this fact comes out very clearly, that as regards Bellary, Cuddapah, and Kurnool, a slight rise in grain-prices, in the first half of 1878, was followed by a corresponding increase in mortality. The prices were already at famine rates, and they could not bear the slightest tension without the effects becoming visible in the increase of mortality from chronic stravation.

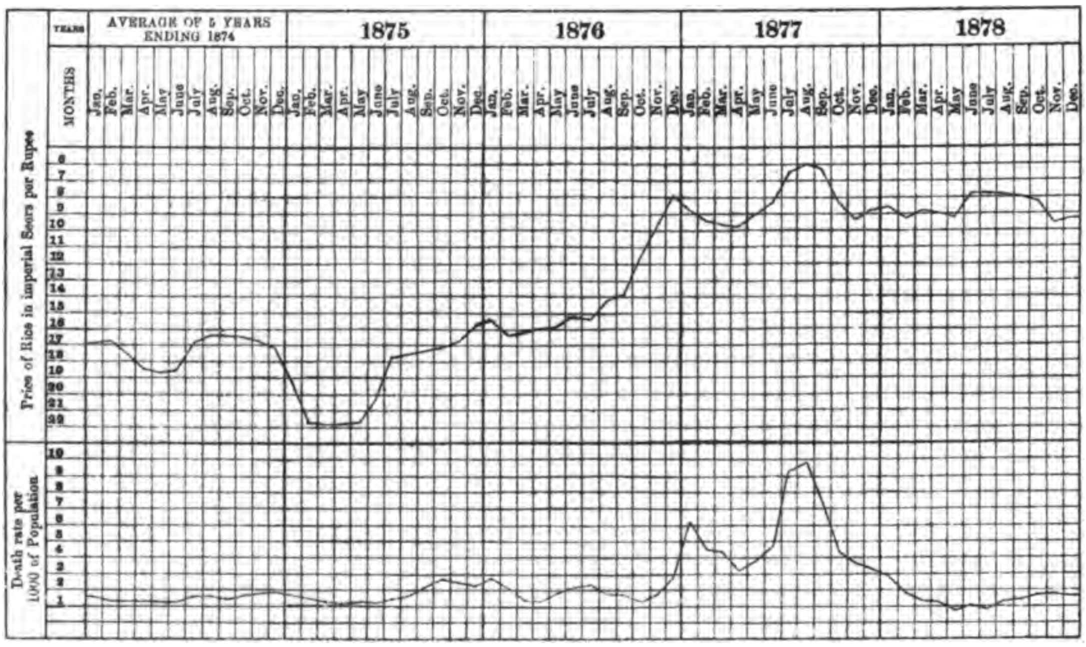
17. The diagram showing the price of rice and mortality for the Godavari District is a very instructive one. In 1877 the Godavari District not only grew enough food for its own population, but, as in former years, exported largely to other districts. The demand for grain was so great that prices soon ran up from below 40

Digitized by Google

8

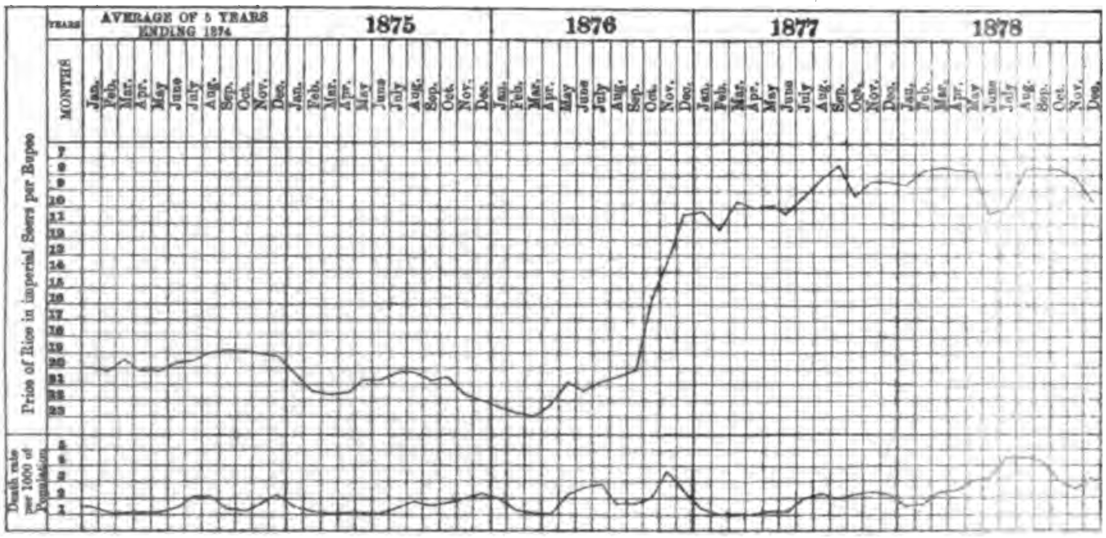
DIAGRAMS SHOWING THE PRICE OF THE STAPLE ARTICLE OF FOOD AND THE DEATH RATE PER MILLE IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878, COMPARED WITH THE AVERAGE OF 5 YEARS ENDING 1874.

CHINGLEPUT

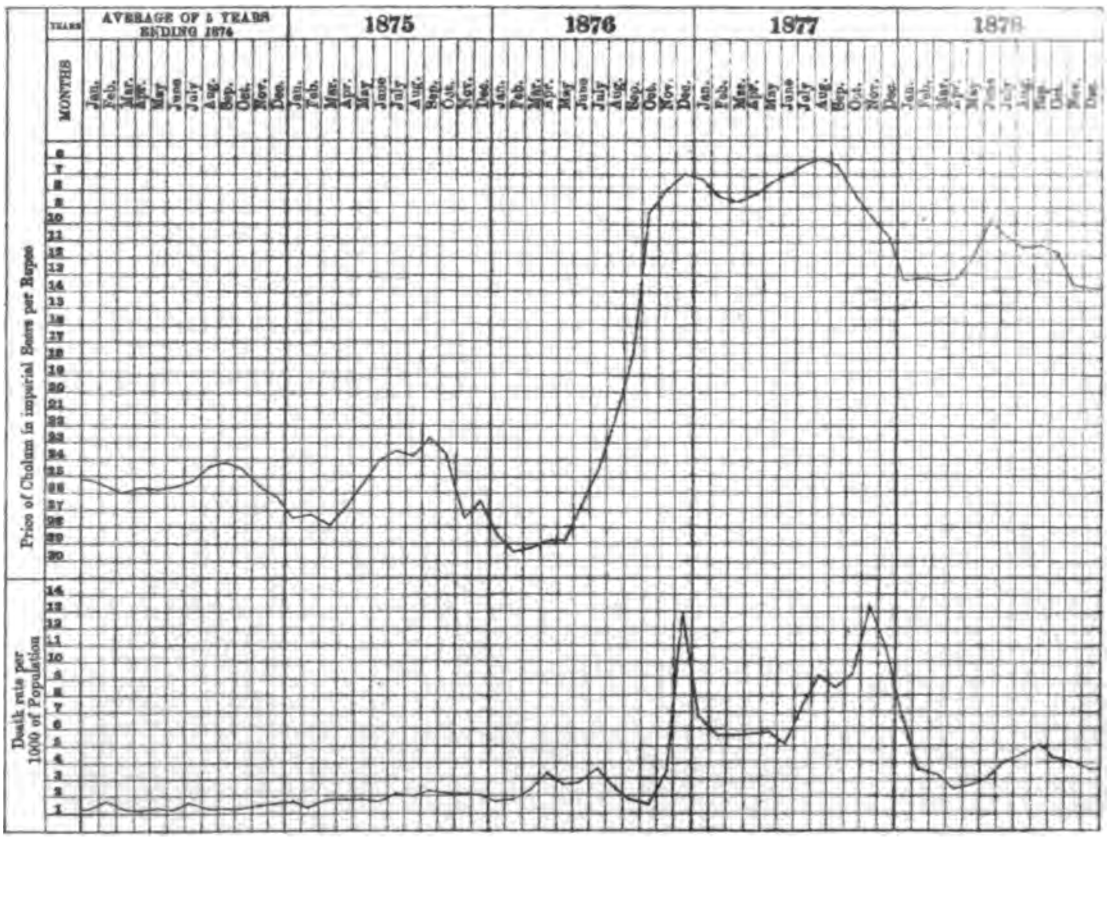


DIAGRAMS SHOWING THE PRICE OF THE STAPLE ARTICLE OF FOOD AND THE DEATH RATE PER MILLE IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878, COMPARED WITH THE AVERAGE OF 5 YEARS ENDING 1874.

GODAVARI



KURNOOL

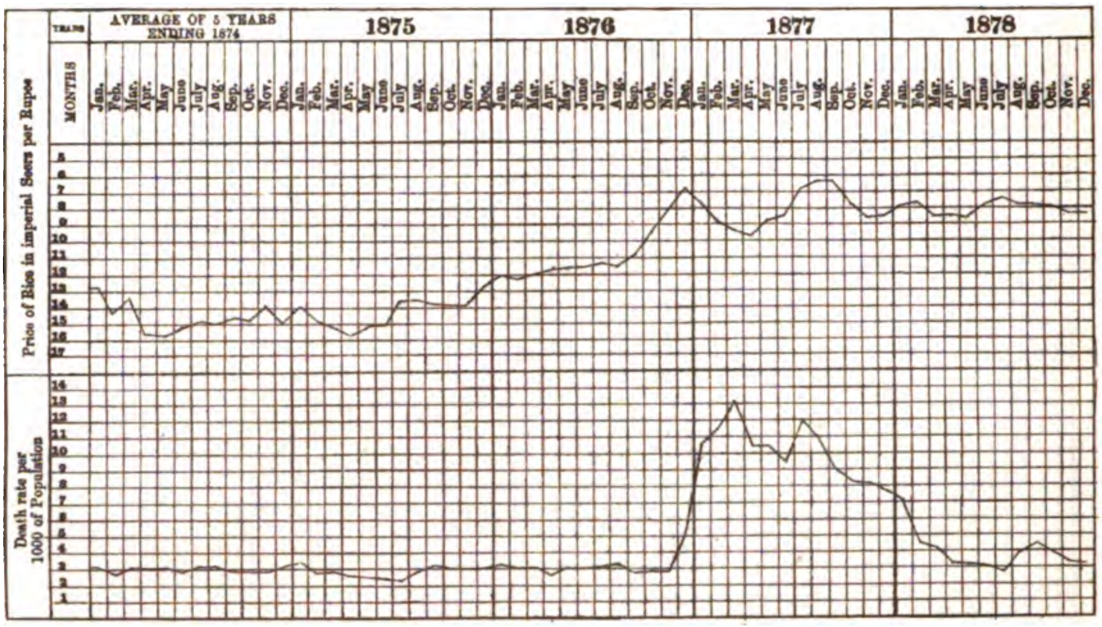


Digitized by Google

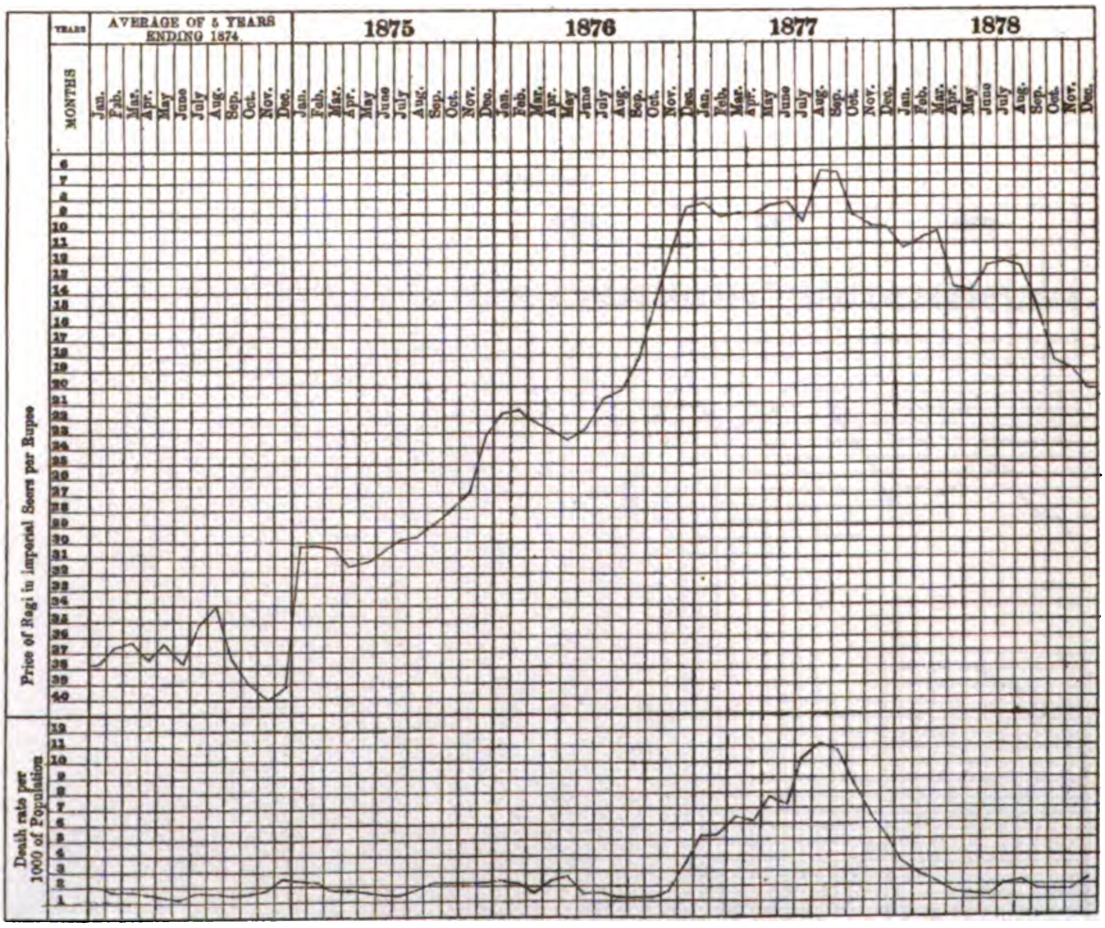
DIAGRAMS SHOWING THE PRICE OF THE STAPLE ARTICLE OF FOOD AND THE DEATH RATE PER MILLE IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878, COMPARED WITH THE AVERAGE OF 5 YEARS ENDING 1874.

2

TOWN OF MADRAS



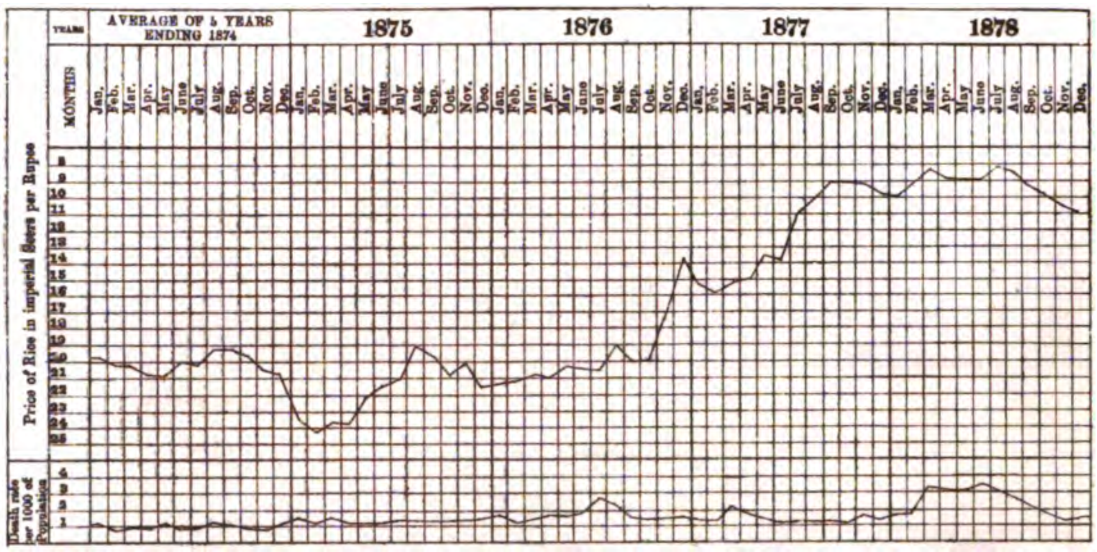
SALEM



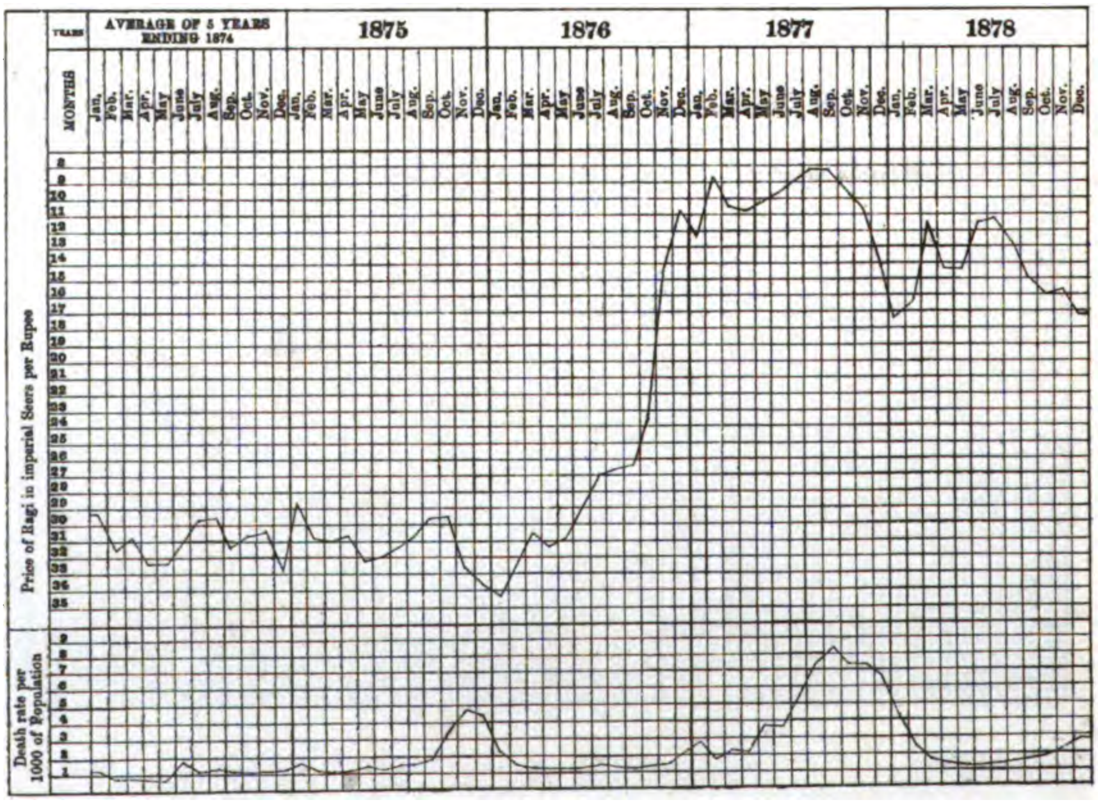
Digitized by Google

DIAGRAMS SHOWING THE PRICE OF THE STAPLE ARTICLE OF FOOD AND THE DEATH RATE PER MILLE IN THE UNDERMENTIONED DISTRICTS OF THE MADRAS PRESIDENCY FOR 4 YEARS ENDING 1878, COMPARED WITH THE AVERAGE OF 5 YEARS ENDING 1874.

GANJAM



MADURA



Digitized by Google

to less than 20 lbs. the rupee. When the price of 20 lbs. per rupee had been reached in July 1877, and maintained thenceforward until the end of 1878, mortality followed the usual food curve, reaching its highest point in August 1878. In Ganjam, too, the diagram shows that food prices touched higher figures in 1878 than in 1877, and that a very sensible rise in mortality occurred when rice remained at a price giving less than 20 lbs. for the rupee.

18. These diagrams as a whole place before the statist and political economist facts of the very highest importance. They prove beyond the shadow of a doubt, the intimate connection between famine prices of food and mortality, and they show also that relief measures in famine times, can only be effectual in saving life on a large scale, by relieving the tension of prices. It is now abundantly made clear that the poorer members of the population, cannot obtain a sufficiency of food to maintain health and life, when a rupee will only purchase from 15 to 20 lbs. of rice, or double that quantity of the common grains, which form the main bulk of the local consumption. *Market prices rising above these rates, after adverse seasons, and a diminished rainfall, mean mischief to the people.*—This is the lesson I learn from the statistical facts before me, and when the facts in regard to famine in other parts of India have been examined in the same way, I have no doubt that they will only strengthen the evidence in regard to this matter.

19. I have already alluded to the circumstance that in the decline of a famine there is not the same close relation between market prices and mortality as there is in the beginning of such a calamity.

Famine begins to press with undue severity on the lower strata of the people, and it is evident that the neediest classes begin to perish when the food scarcity pinches them, and that towards the end of the famine these classes have undergone a very great reduction in numbers, so that a chronic continuance of high prices is borne better by the few well-to-do survivors than by the helpless many, who only existed precariously when food was cheap and abundant.

The great mischief of the famine as regards public health was the scarcity of food from November 1876 to August 1877. Mortality touched its highest point in August 1877, and from that time locally grown crops came in to eke out the stores of imported food and private stocks. To the enfeebled condition of the survivors of the poorer classes, is attributable most of the excess of mortality occurring in 1878. The experience of the jails in regard to this matter showed that large numbers were so severely wasted during the crisis of the famine, that no subsequent care or feeding helped to restore them. All through 1878, the victims of the famine in jails continued to drop off, and fade away, and precisely the same thing occurred in regard to the general population. In some districts absolute distress persisted longer than in others, but by the end of 1878, nearly all those persons who had not been fatally attacked by famine diseases, had regained their usual condition as to flesh and physique, and anxiety in regard to sufficiency of food to sustain the people was at an end. In Bellary, Cuddapah, Kurnool and Nellore, the birth-rates at the end of the year were but very slowly recovering, showing that in these districts famine distress was still affecting the poor all through the early months of 1878.

20. The usual tables of the monthly prices of the various food-grains are appended for reference, but the facts to which I attach greatest importance, the close connection between abnormal prices of food, and abnormal mortality of an Indian population, are best shown in the series of diagrams I have prepared to illustrate this section of the report.

Digitized by Google

Table showing the Average Prices of Food in the Madras Presidency during 1875, 1876, 1877, *and* 1878, *compared with the Average of the previous* 5 *Years.*

Second-sort Rice.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
GANJAM.													
Average of 5 years.	19·7	20·1	20·4	20·7	20·8	20·0	20·1	19·3	19·3	19·6	20·5	20·6	19·9
1875	23·5	24·2	23·6	23·7	22·3	21·4	21·0	19·0	19·7	20·8	20·1	21·6	21·7
1876	23·0	21·2	20·7	21·0	20·2	20·4	20·4	19·0	20·0	19·9	17·4	13·7	19·7
1877	15·2	15·7	15·1	15·0	13·5	13·7	11·0	10·1	9·0	9·0	9·1	9·7	12·2
1878	9·9	9·0	8·4	8·7	8·8	8·8	8·2	8·4	9·1	9·9	10·5	10·8	9·2
VIZAGAPATAM.													
Average of 5 years.	16·2	16·9	18·1	17·8	17·5	16·8	16·7	15·4	16·1	15·9	16·2	16·3	16·6
1875	17·0	18·0	17·9	17·9	17·3	16·8	16·8	16·0	15·9	16·2	16·7	17·0	16·9
1876	17·8	17·0	17·6	16·2	16·7	16·8	16·7	16·8	16·3	15·1	12·9	11·2	15·9
1877	11·0	11·7	11·5	10·7	10·7	10·3	8·8	7·8	7·3	7·7	7·6	8·5	9·4
1878	9·9	8·4	8·2	8·1	7·6	7·2	6·9	7·6	8·1	8·2	8·3	7·8	8·0
GODAVARI.													
Average of 5 years.	20·0	20·1	19·4	20·1	20·1	19·7	19·5	19·0	18·9	19·0	19·0	19·3	19·4
1875	20·2	21·3	21·6	21·5	20·6	20·6	20·2	20·2	20·8	20·7	21·6	22·0	20·9
1876	22·3	22·6	22·9	22·2	20·9	21·4	20·9	20·5	20·1	15·7	13·1	10·5	19·4
1877	10·2	11·2	9·7	10·0	9·9	10·3	9·2	8·1	7·4	9·3	8·4	8·4	9·6
1878	8·6	7·8	7·5	7·6	7·7	10·3	10·0	7·7	7·5	7·5	8·1	9·6	8·3
KISTNA.													
Average of 5 years.	14·8	15·2	15·5	15·4	15·5	15·4	15·0	14·7	14·8	14·8	14·9	15·6	15·1
1875	18·8	19·9	19·6	19·9	19·7	18·4	18·7	18·5	18·8	19·0	19·5	20·0	19·2
1876	20·4	20·5	20·7	20·4	19·8	19·2	18·3	18·0	17·1	13·7	10·7	8·9	17·3
1877	8·7	10·3	9·0	9·2	9·0	9·1	8·0	7·0	7·1	7·9	7·5	7·6	8·4
1878	7·9	7·6	7·3	7·6	7·7	7·4	7·6	7·7	7·2	6·8	7·0	8·3	7·5
NELLORE.													
Average of 5 years.	17·5	17·1	17·0	17·0	16·8	16·7	17·6	17·1	17·2	16·4	17·1	17·4	17·1
1875	15·3	15·7	15·5	15·9	16·6	17·2	17·5	17·0	17·5	17·5	17·7	16·4	16·6
1876	15·9	15·5	15·7	15·4	15·1	14·9	15·0	14·5	13·9	11·7	8·2	6·9	13·7
1877	7·1	8·1	7·2	7·9	7·8	7·8	6·8	5·7	5·8	6·4	6·9	7·5	7·1
1878	7·8	7·5	7·6	7·7	8·2	8·1	7·9	8·2	8·5	8·5	8·0	8·4	8·0

Cholum.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
GANJAM.													
Average of 5 years.	30·0	32·1	31·4	30·0	29·7	28·7	27·3	26·9	26·7	26·2	24·2	31·8	29·1
1875	29·1	34·8	33·2	29·3	28·2	25·1	22·5	22·5	24·6	23·9	28·2	28·8	27·5
1876	29·3	30·2	27·4	27·3	23·9	25·5	26·4	26·7	26·7	26·7	28·2	16·2	26·2
1877	13·9	21·0	21·0	20·8	18·5	17·9	14·7	14·6	13·9	13·9	13·9	13·9	16·5
1878	13·6	14·3	12·8	12·8	11·7	11·6	9·8	10·8	7·7	11·3	8·5	13·7	11·5
VIZAGAPATAM.													
Average of 5 years.	27·2	28·9	30·7	34·3	30·6	27·0	27·5	26·5	27·4	27·8	29·3	29·2	28·8
1875	32·3	33·1	31·1	29·8	30·4	28·4	25·7	24·8	24·0	23·5	21·9	28·1	27·7
1876	27·7	30·3	31·0	30·3	28·4	26·5	27·2	23·0	27·1	25·9	22·7	16·4	26·4
1877	17·4	19·6	19·0	18·4	17·0	16·3	14·0	11·1	10·1	9·4	10·1	13·5	14·7
1878	16·0	13·6	12·9	11·8	12·0	11·2	11·4	11·5	11·8	11·7	12·0	14·9	12·5
GODAVARI.													
Average of 5 years.	32·4	33·1	32·4	34·4	33·7	33·0	32·1	32·1	31·7	31·9	31·1	31·9	32·5
1875	36·0	37·4	37·8	37·9	36·4	36·1	34·3	33·6	33·9	34·1	34·2	35·4	35·6
1876	37·6	38·6	39·3	38·8	38·1	37·2	37·1	36·8	37·6	27·3	18·9	13·4	33·4
1877	14·8	17·2	15·7	15·7	14·8	14·9	12·2	7·4	8·9	11·3	12·6	13·0	13·2
1878	16·0	13·9	13·3	13·7	13·7	14·9	13·2	12·8	12·3	12·3	13·5	15·5	13·7
KISTNA.													
Average of 5 years.	22·3	22·9	23·3	24·0	23·2	22·3	22·2	21·9	22·8	23·5	22·1	22·7	22·7
1875	28·5	29·0	29·1	27·4	26·3	26·2	24·8	25·7	26·4	26·9	27·9	29·[illegible]	27·3
1876	31·5	32·0	31·0	30·3	30·3	30·3	29·7	28·9	28·3	20·0	14·5	11·2	26·5
1877	11·5	12·7	11·5	11·3	11·2	11·2	8·9	8·0	9·0	10·7	11·1	12·4	10·8
1878	13·6	12·4	11·4	11·5	11·9	10·6	11·0	11·3	9·8	10·1	11·4	15·2	11·7
NELLORE.													
Average of 5 years.	27·7	27·7	28·7	28·0	27·6	26·9	27·8	27·4	25·9	24·4	27·2	27·1	27·3
1875	25·6	26·0	26·3	27·6	28·4	29·8	29·5	29·1	28·5	28·8	28·4	27·5	28·0
1876	27·3	27·8	27·1	28·1	27·8	27·5	26·7	24·8	23·8	17·6	12·0	8·7	23·3
1877	8·0	8·9	9·4	9·4	9·2	9·4	8·0	6·4	6·8	7·2	7·5	8·8	8·8
1878	10·4	11·3	11·8	12·5	13·0	12·4	11·2	11·7	12·4	13·7	13·2	16·3	12·5

Ragi

Districts.	January.	February.	March.	April.	May	June.	July.	August.	September.	October.	November.	December.	Average.
GANJAM.													
Average of 5 years.	35·2	34·8	34·5	34·7	33·8	33·4	33·7	32·4	33·5	36·1	37·1	36·7	34·6
1875	40·3	40·8	41·2	40·6	39·3	38·0	37·1	34·3	35·7	40·4	40.3	40·0	39·0
1876	39·6	38·5	37·5	37·3	36·3	35·8	35·6	32·9	37·8	39·5	28·0	16·8	34·6
1877	20·8	22·7	22·8	23·2	21·1	17·0	14·7	18·7	17·7	14·6	15·2	14·8	18·2
1878	15·1	13·2	12·7	13·0	12·7	12·1	11·0	12·4	13·0	17·3	20·4	18·6	14·3
VIZAGAPATAM.													
Average of 5 years.	28·4	27·7	29·9	30·2	29·8	28·0	27·1	26·8	28·3	29·7	29·7	29·3	28·6
1875	32·4	32·1	32·2	32·1	32·2	30·2	28·9	27·8	29·1	33·4	32·9	33·6	30·5
1876	31·8	30·0	31·4	31·0	30·2	30·0	27·5	28·3	29·6	29·3	22·8	17·2	28·8
1877	17·5	19·5	18·7	18·0	17·8	16·8	14·6	13·0	11·7	12·1	12·4	13·9	15·5
1878	14·6	13·4	12·9	12·9	12·5	11·7	11·6	16·2	18·5	17·9	18·1	17·7	14·8
GODAVARI.													
Average of 5 years.	36·8	36·8	34·9	36·9	36·3	35·4	35·4	34·7	34·6	34·9	34·7	34·0	35·4
1875	36·7	38·3	36·5	38·1	37·2	37·4	37·0	35·7	36·0	35·9	39·2	38·6	37·2
1876	39·6	40·0	39·0	38·4	38·0	38·0	37·3	36·4	39·3	27·9	20·2	14·7	34·1
1877	14·5	16·5	16·8	16·5	15·8	15·6	12·5	10·5	9·5	12·9	14·2	15·5	14·2
1878	16·5	13·4	12·5	13·4	13·7	15·7	13·3	13·7	13·2	13·3	14·3	16·8	14·1
KISTNA.													
Average of 5 years.	28·6	29·4	29·3	30·3	31·0	30·2	29·2	27·7	28·0	28·3	27·1	30·1	29·1
1875	35·8	35·4	35·4	34·3	33·8	33·6	32·8	32·6	32·6	32·1	32·1	30·8	34·2
1876	35·3	36·1	36·7	35·9	35·2	35·8	31·2	32·4	31·3	24·2	15·8	11·0	30·1
1877	10·8	14·4	13·5	14·4	13·6	13·1	9·9	8·1	9·6	11·5	11·6	12·2	11·9
1878	13·9	13·3	11·8	13·2	13·3	12·4	11·9	12·2	11·2	11·0	11·2	14·7	12·5
NELLORE.													
Average of 5 years.	32·5	31·4	33·5	31·9	32·1	32·1	32·7	32·2	31·9	31·9	31·6	30·8	32·0
1875	27·9	28·3	29·0	29·0	31·5	32·6	31·5	31·0	30·9	31·2	30·9	28·9	30·2
1876	28·6	28·5	28·8	29·9	29·8	29·6	29·3	26·4	24·9	18·8	13·3	8·8	24·7
1877	8·1	9·2	10·6	11·2	10·7	10·6	8·5	7·1	7·0	8·6	8·6	9·2	9·1
1878	11·4	11·4	11·9	13·2	14·3	13·6	12·3	12·5	13·2	14·7	13·9	14·0	13·0

Digitized by Google

Table showing the Average Prices of Food in the Madras Presidency during 1875, 1876, 1877 *and* 1878, *compared with the Average of the previous* 5 *Years*—(Continued).

Second-sort Rice.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
CUDDAPAH.													
Average of 5 years.	13·6	13·8	14·0	14·3	14·8	15·0	15·1	15·1	15·0	15·1	15·2	15·2	14·6
1875	19·4	19·7	20·1	20·8	20·7	20·4	20·7	20·4	20·0	19·8	17·8	15·6	19·5
1876	14·8	14·7	14·5	13·7	14·1	13·9	12·4	12·0	11·2	8·7	7·2	6·8	12·0
1877	6·8	7·2	7·9	8·4	7·8	7·4	5·8	5·8	5·6	7·1	7·9	8·5	7·2
1878	8·6	7·8	7·7	8·6	9·2	8·6	8·6	8·2	9·0	9·8	9·7	10·6	8·8
BELLARY.													
Average of 5 years.	13·8	14·2	14·1	14·6	14·8	14·9	14·7	14·6	14·9	14·6	14·5	14·8	14·5
1875	19·3	19·3	19·4	19·7	19·9	19·9	19·2	19·0	18·6	17·8	16·2	14·6	18·7
1876	15·1	15·2	15·0	14·8	14·8	14·5	13·5	12·7	11·1	8·4	6·7	6·9	12·4
1877	6·9	7·2	7·4	8·2	7·1	6·5	5·6	5·3	5·5	6·8	7·8	7·7	6·9
1878	8·3	7·7	7·9	8·4	8·6	8·2	8·3	8·5	8·9	9·4	9·9	11·0	8·7
KURNOOL.													
Average of 5 years.	13·0	12·8	12·5	13·0	13·1	13·1	13·3	13·2	13·1	13·3	13·5	13·2	13·1
1875	15·8	15·2	15·9	15·9	15·9	16·0	15·7	15·2	15·6	14·9	15·5	15·4	15·6
1876	15·5	15·3	15·2	15·1	15·3	15·0	14·2	13·5	12·1	7·3	6·5	6·8	12·6
1877	6·3	8·0	7·0	7·4	6·6	6·4	5·4	5·3	5·4	7·6	6·9	7·9	6·7
1878	7·7	7·9	8·0	8·2	8·3	7·7	8·2	8·0	8·1	7·9	8·8	9·4	8·2
MADRAS.													
Average of 5 years.	12·9	14·2	13·4	15·6	15·6	15·2	14·9	15·0	14·7	14·8	13·9	14·9	14·4
1875	13·9	14·8	15·1	15·7	15·1	15·0	13·7	13·5	13·7	13·7	13·9	12·8	14·2
1876	12·0	12·1	12·0	11·8	11·7	11·5	11·3	11·4	10·8	9·4	8·1	6·8	10·7
1877	7·7	8·9	9·3	9·7	8·8	8·3	6·9	6·3	6·3	7·7	8·5	8·4	8·1
1878	7·9	7·7	8·2	8·4	8·4	7·8	7·4	7·8	7·9	8·0	8·4	8·4	8·0
CHINGLEPUT.													
Average of 5 years.	16·9	16·7	17·5	18·4	18·7	18·6	16·9	16·2	16·2	16·4	16·8	17·1	16·8
1875	19·1	21·7	21·8	21·8	21·7	20·5	17·7	17·5	17·3	17·1	16·8	15·9	19·1
1876	15·5	16·4	16·2	16·0	15·9	15·2	15·4	14·1	13·9	11·6	9·8	7·9	14·0
1877	8·8	9·4	9·5	9·6	9·0	8·4	6·5	6·0	6·2	8·4	9·3	8·8	8·3
1878	8·5	9·1	8·9	9·0	9·1	7·8	7·7	7·9	8·0	8·2	9·5	9·2	8·5

Cholum.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
CUDDAPAH.													
Average of 5 years.	24·7	24·4	25·1	25·3	25·8	25·2	24·9	24·8	24·6	24·9	25·4	25·8	25·8
1875	28·1	29·7	31·2	31·8	31·3	30·8	30·4	30·8	30·3	30·6	29·3	27·1	30·1
1876	26·5	27·3	25·3	23·6	26·2	25·3	21·9	20·2	17·1	11·8	8·7	7·2	20·1
1877	6·0	8·5	9·5	9·3	8·6	8·3	6·6	6·3	6·7	9·0	10·4	11·5	8·4
1878	14·0	12·9	12·9	13·4	12·9	11·2	11·3	11·7	13·4	14·5	14·8	16·1	13·2
BELLARY.													
Average of 5 years.	28·4	27·5	30·1	29·0	28·7	28·4	26·9	29·2	27·1	29·4	30·5	30·2	28·7
1875	32·6	32·2	31·7	30·2	30·3	28·7	27·6	27·0	25·0	25·2	26·2	25·6	28·5
1876	26·1	25·7	25·6	25·8	25·3	24·6	22·4	20·5	15·5	10·4	7·5	7·5	19·7
1877	7·8	8·4	9·1	8·6	7·5	6·8	6·0	5·8	6·3	9·1	10·8	10·8	8·1
1878	11·7	11·0	11·5	11·3	10·8	9·4	9·4	9·7	10·7	12·2	14·8	16·4	11·5
KURNOOL.													
Average of 5 years.	25·2	25·5	26·0	25·7	25·8	25·6	25·2	24·4	24·1	24·5	25·7	26·1	25·2
1875	27·5	27·2	27·9	26·9	25·4	24·0	23·4	23·8	22·6	23·8	27·4	26·4	25·5
1876	28·4	29·4	29·1	28·8	28·3	26·8	24·4	21·5	17·7	9·3	7·9	7·0	21·6
1877	7·1	8·1	8·6	8·8	7·3	7·0	6·2	6·0	6·4	8·2	9·5	10·6	7·8
1878	13·2	13·1	13·2	13·1	12·0	9·8	10·8	11·3	11·2	11·7	13·6	13·9	12·2
MADRAS.													
Average of 5 years.	22·6	22·9	21·1	22·9	22·2	21·5	21·8	22·6	22·2	23·1	23·1	25·3	22·1
1875	22·5	22·8	23·4	23·8	23·8	23·6	23·8	23·4	22·7	22·7	22·7	23·1	23·2
1876	20·8	19·6	18·5	16·8	18·0	18·3	18·0	17·8	16·5	12·5	10·9	9·0	16·8
1877	9·3	10·3	11·7	11·1	11·9	10·2	8·7	7·9	7·9	11·4	11·5	11·6	10·3
1878	11·4	10·5	9·2	9·4	10·0	9·8	9·7	10·0	10·4	12·2	...	11·0	10·8
CHINGLEPUT.													
Average of 5 years.	23·7	23·7	23·3	22·7	22·6	22·7	20·9	22·1	23·0	22·5	23·0	24·1	22·4
1875	22·0	22·0	22·1	22·3	22·8	18·4	18·4	18·4	18·4	21·5	21·5	21·5	20·8
1876	17·6	...	...	...	...	20·1	23·5	23·5	22·9	18·6	14·3	8·7	18·6
1877	11·9	10·9	11·5	10·1	10·2	9·6	7·4	7·1	7·3	6·7	11·7	9·1	9·5
1878	7·4	12·1	11·2	10·3	11·3	11·8	9·6	11·5	13·0	13·7	13·7	13·7	11·6

Ragi.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
CUDDAPAH.													
Average of 5 years.	27·7	27·6	28·2	29·2	29·8	29·0	28·0	28·8	27·7	28·3	28·8	28·5	28·7
1875	31·1	32·1	32·6	33·2	33·8	34·2	32·6	32·3	31·5	32·2	29·4	28·2	31·1
1876	27·7	27·7	27·3	27·6	27·6	26·7	22·7	21·3	17·2	12·0	9·1	7·4	21·1
1877	7·6	9·0	10·0	9·9	8·6	8·6	6·8	6·4	6·8	9·1	10·4	12·0	8·8
1878	14·0	12·7	12·9	13·5	14·0	12·2	11·4	11·4	12·8	15·1	16·5	17·2	13·6
BELLARY.													
Average of 5 years.	33·7	33·9	33·1	34·7	34·5	35·2	33·9	33·3	33·8	34·3	35·8	36·1	34·3
1875	35·4	34·4	34·6	33·5	32·6	31·4	30·7	29·0	27·7	26·7	26·8	26·9	30·8
1876	27·2	26·9	26·4	26·2	25·4	24·4	22·1	19·4	15·2	10·5	8·3	7·9	19·9
1877	7·8	7·8	9·1	9·0	7·9	7·4	6·4	6·0	7·1	10·7	12·2	12·1	8·6
1878	11·7	10·9	10·7	11·2	11·0	9·5	9·5	10·0	11·6	14·2	18·2	19·2	12·3
KURNOOL.													
Average of 5 years.	27·4	27·7	27·2	27·9	29·5	28·4	27·5	27·5	26·1	27·1	26·6	27·6	27·6
1875	26·6	26·9	27·4	28·6	27·0	25·1	25·8	25·9	24·7	24·9	22·7	25·1	25·8
1876	26·1	27·4	23·8	28·7	28·1	27·2	26·4	23·0	19·7	10·6	9·0	7·5	21·4
1877	7·7	8·5	8·6	9·1	8·0	7·4	6·4	5·3	6·6	8·8	10·5	12·7	8·3
1878	13·6	14·0	13·2	12·3	11·9	10·8	10·9	12·2	13·5	13·9	15·4	16·8	13·2
MADRAS.													
Average of 5 years.	25·4	27·9	24·2	27·5	27·5	27·1	28·4	28·7	28·4	29·2	28·2	30·7	27·2
1875	25·6	25·8	25·9	24·6	24·3	23·3	22·6	22·9	23·1	22·6	22·6	21·3	23·7
1876	19·9	20·3	18·9	19·3	19·3	18·6	19·3	19·3	17·1	12·8	10·4	7·9	16·9
1877	9·4	10·1	11·1	10·8	10·0	9·6	8·1	7·6	8·1	11·0	11·5	11·0	9·8
1878	11·4	10·4	9·4	10·3	11·4	10·5	10·1	12·2	13·2	14·8	15·5	15·3	11·9
CHINGLEPUT.													
Average of 5 years.	28·5	28·0	27·9	28·7	28·8	28·5	26·3	26·4	26·6	28·3	28·8	28·6	27·4
1875	26·3	26·7	26·6	26·8	27·2	26·1	24·8	24·7	24·4	25·0	24·9	23·0	25·5
1876	22·7	22·3	22·0	22·4	22·6	21·1	20·5	21·0	20·1	17·0	13·4	9·4	19·5
1877	9·7	10·8	11·2	11·7	10·9	9·9	7·8	6·5	8·3	11·8	12·0	11·3	10·2
1878	11·8	10·8	10·4	11·1	10·7	9·8	9·4	10·4	13·9	16·3	15·8	14·4	12·0

Digitized by Google

Table showing the Average Prices of Food in the Madras Presidency during 1875, 1876, 1877, *and* 1878, *compared with the Average of the previous* 5 *Years*—(Continued).

Districts.	Second-sort Rice.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
North Arcot.													
Average of 5 years.	17·6	17·3	17·7	18·2	18·2	18·9	18·1	18·6	18·1	17·8	19·2	18·6	18·0
1875	18·8	19·3	19·1	19·8	19·5	19·5	18·5	17·9	17·7	17·7	16·4	15·0	18·3
1876	15·0	14·6	14·5	14·8	14·5	13·6	13·2	12·7	12·2	9·8	8·4	7·2	12·5
1877	7·4	8·0	8·2	8·7	8·0	7·4	6·3	6·5	5·8	8·0	8·4	8·3	7·6
1878	8·5	8·5	8·5	9·0	9·1	8·1	7·9	8·4	8·9	9·8	10·4	10·9	9·0
South Arcot.													
Average of 5 years.	17·0	17·9	18·8	18·9	18·2	18·0	17·5	17·1	17·0	16·9	17·9	17·6	17·7
1875	18·4	20·2	20·3	20·7	19·2	18·3	17·3	16·9	17·3	17·0	18·1	16·7	18·4
1876	15·1	15·4	15·4	15·4	15·4	15·5	14·9	14·5	14·2	12·7	9·7	7·6	13·8
1877	8·3	8·7	9·1	10·0	9·1	8·6	6·8	6·2	5·8	6·8	7·6	8·1	7·9
1878	9·1	10·8	10·0	9·5	9·7	8·7	7·9	8·0	8·5	8·9	10·0	10·2	9·2
Tanjore.													
Average of 5 years.	16·3	16·9	17·3	17·4	16·9	16·3	16·4	16·0	15·7	16·6	16·7	16·0	16·2
1875	14·7	15·9	16·8	16·8	16·5	16·3	15·9	13·5	14·5	14·8	15·3	15·7	15·5
1876	15·5	14·2	14·5	14·7	14·7	14·5	13·5	13·3	13·5	13·4	10·7	8·4	13·4
1877	9·6	9·2	9·7	9·8	8·1	8·7	7·7	6·6	6·2	6·9	8·0	8·1	8·2
1878	10·5	11·6	10·1	10·1	10·1	9·0	8·2	8·3	8·6	9·5	9·2	8·9	9·5
Trichinopoly.													
Average of 5 years.	16·4	16·8	17·0	17·0	16·8	16·3	16·9	15·9	15·9	16·1	16·8	16·2	16·4
1875	14·6	15·4	16·0	15·8	15·7	15·5	15·1	14·9	15·0	14·5	15·9	16·4	15·4
1876	16·2	14·3	14·3	13·5	14·4	13·7	12·8	12·8	12·8	13·0	9·1	7·0	12·8
1877	7·7	7·6	7·9	8·3	7·7	7·5	6·2	5·8	5·4	6·3	7·0	7·1	7·0
1878	9·0	9·9	9·0	8·8	9·0	7·6	7·3	7·5	7·9	8·8	8·6	8·5	8·5
Madura.													
Average of 5 years.	13·3	13·6	14·0	14·6	14·5	14·0	13·8	14·0	13·6	13·4	13·8	13·8	13·9
1875	13·1	14·8	15·0	15·7	15·9	15·8	15·6	14·6	13·8	13·5	14·2	15·1	14·8
1876	15·3	14·3	14·7	15·0	14·7	14·3	13·0	12·6	12·6	11·9	8·8	7·0	12·9
1877	7·4	7·5	8·2	8·9	8·2	8·1	6·5	6·5	5·8	6·7	7·9	7·5	7·4
1878	9·2	10·5	8·7	9·1	9·1	8·1	7·9	8·0	8·5	8·8	8·7	8·5	8·7

Districts.	Cholum.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
North Arcot.													
Average of 5 years.	27·4	29·5	29·9	30·3	29·2	31·9	28·8	30·6	30·9	31·2	31·1	30·0	29·6
1875	25·1	25·9	26·2	26·0	27·2	26·8	25·4	26·1	26·3	27·0	23·5	22·9	25·7
1876	22·6	21·1	21·3	21·6	23·0	20·5	20·7	20·0	16·9	12·8	10·0	8·8	16·6
1877	8·2	8·2	10·0	10·3	9·1	8·5	7·4	6·6	6·7	8·3	9·3	9·5	8·5
1878	11·0	14·9	10·2	10·4	10·7	9·6	10·5	12·6	14·4	14·4	13·9	16·0	12·4
South Arcot.													
Average of 5 years.	36·3	39·5	40·6	36·4	34·3	32·8	33·0	31·1	29·1	31·5	32·2	35·6	34·8
1875	35·9	34·7	34·7	37·4	35·8	36·5	34·4	29·8	28·0	29·6	36·5	34·4	33·8
1876	27·7	28·6	25·1	26·1	24·4	24·5	23·9	22·0	22·4	23·0	16·6	10·7	22·8
1877	11·1	11·5	11·5	11·6	10·5	9·7	7·6	6·7	7·4	8·5	9·9	15·8	10·1
1878	15·9	15·1	13·7	12·8	13·2	11·5	9·6	10·9	11·9	12·3	...	12·4	12·5
Tanjore.													
Average of 5 years.	27·8	29·0	26·1	29·6	29·9	27·9	25·3	25·0	26·7	29·0	29·5	30·1	27·9
1875	25·5	23·7	23·5	25·3	26·3	24·6	21·5	21·3	21·2	28·4	28·2	29·2	24·8
1876	27·8	27·0	27·4	26·6	27·3	25·3	24·2	23·2	22·6	24·0	17·2	11·1	23·8
1877	11·7	12·3	12·2	13·7	8·2	10·8	13·9	8·5	9·8	11·3	14·2	12·4	12·0
1878	14·7	15·1	13·2	15·0	15·1	12·8	12·0	11·5	13·6	16·0	14·8	13·8	13·9
Trichinopoly.													
Average of 5 years.	32·8	34·7	33·5	34·7	33·4	29·3	26·9	28·1	27·9	29·0	29·7	30·9	30·8
1875	24·5	28·0	28·0	38·3	37·2	37·0	33·2	32·5	32·1	31·7	31·5	31.8	32·1
1876	31·4	32·0	31·6	28·0	34·1	35·1	33·4	34·8	25·7	25·2	16·7	10·6	28·2
1877	18·8	14·8	15·2	14·7	12·8	13·0	12·6	7·3	...	...	...	20·8	...
1878	32·6	35·0	28·3	21·0	21·7	11·2	9·6	9·7	10·8	14·3	13·1	17·3	18·3
Madura.													
Average of 5 years.	31·6	31·2	31·6	32·3	31·7	30·6	31·2	30·4	30·6	30·0	28·0	31·7	30·8
1875	32·1	36·9	37·3	30·6	34·0	35·6	34·9	31·0	29·5	28·8	30·7	34·9	33·0
1876	35·9	33·2	34·9	35·6	35·1	32·4	29·9	29·1	27·2	22·5	13·9	13·6	28·6
1877	13·6	13·2	12·5	12·5	12·4	10·5	8·8	7·8	7·4	8·4	15·9	17·3	11·7
1878	22·1	25·7	19·4	16·0	18·1	12·2	11·3	13·2	12·8	13·3	21·1	22·2	17·3

Districts.	Ragi.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
North Arcot.													
Average of 5 years.	33·2	32·2	32·2	33·3	33·8	31·5	33·2	33·0	33·2	34·3	36·0	34·7	33·1
1875	30·9	30·3	30·0	30·6	31·0	30·9	29·4	27·6	28·6	29·0	25·5	23·3	28·9
1876	22·5	22·4	22·0	21·9	23·1	21·3	21·5	19·4	12·4	14·6	11·6	8·6	18·4
1877	8·5	9·4	9·7	10·8	9·8	9·1	7·4	6·9	6·9	9·9	10·0	9·4	8·9
1878	10·6	10·2	9·9	11·8	12·7	10·3	10·3	11·0	15·9	17·9	17·3	17·6	12·9
South Arcot.													
Average of 5 years.	34·9	35·2	34·8	33·7	32·9	32·3	31·5	30·7	33·1	35·3	36·8	37·1	34·0
1875	34·5	34·3	32·8	31·6	30·2	28·6	26·3	26·3	27·7	31·4	31·7	28·3	30·3
1876	25·0	24·5	23·6	23·3	23·9	24·2	23·3	23·4	24·5	22·6	14·7	10·3	21·9
1877	10·2	10·7	10·8	11·9	10·6	10·0	8·2	7·6	7·9	10·7	11·3	12·6	10·2
1878	15·0	13·5	12·3	12·1	12·5	11·0	9·4	10·9	15·6	19·5	19·0	19·5	14·2
Tanjore.													
Average of 5 years.	34·5	34·6	35·1	33·8	32·8	31·5	30·4	30·4	30·3	35·5	35·0	35·5	33·2
1875	29·1	27·8	29·4	28·2	28·7	28·6	27·5	26·9	27·9	31·2	33·6	31·5	29·2
1876	29·8	29·0	28·1	28·8	25·8	26·8	26·4	25·9	26·4	24·3	16·6	11·3	24·9
1877	11·3	12·9	12·3	13·2	12·3	11·4	8·5	9·1	10·1	12·2	13·5	13·7	10·9
1878	16·5	15·7	14·0	15·0	15·2	13·5	12·6	13·1	16·1	18·2	16·8	15·6	15·2
Trichinopoly.													
Average of 5 years.	36·8	35·8	34·3	33·7	32·6	31·2	33·2	30·2	31·9	34·6	36·4	36·6	33·5
1875	30·1	30·7	30·7	30·7	30·1	29·3	28·5	27·7	27·6	29·6	30·4	30·4	29·6
1876	29·6	27·0	25·7	26·2	26·3	27·0	25·6	24·3	24·0	22·2	15·7	10·4	23·7
1877	11·1	11·7	11·3	11·3	10·6	10·7	8·7	7·3	8·1	10·6	11·3	13·0	10·6
1878	16·0	16·4	12·9	13·7	13·6	11·8	10·4	10·8	15·1	18·3	16·4	16·9	14·3
Madura.													
Average of 5 years.	29·2	31·5	30·9	32·3	32·3	31·1	29·7	29·6	31·2	30·5	30·4	32·9	30·9
1875	28·6	30·8	31·0	30·7	32·1	32·0	31·2	30·8	29·7	29·6	32·5	33·6	31·1
1876	34·2	32·2	30·4	31·2	30·8	29·0	27·0	26·5	26·3	23·5	14·4	10·8	26·3
1877	12·3	8·8	10·5	10·6	10·1	9·8	9·0	8·3	8·2	9·4	10·8	14·1	10·2
1878	17·3	16·3	11·5	14·2	14·2	11·5	11·1	12·4	15·0	15·9	15·6	17·1	14·3

Digitized by Google

Table showing the Average Prices of Food in the Madras Presidency during 1875, 1876, 1877, *and* 1878, *compared with the Average of the previous* 5 *Years*—(Continued).

Second-sort Rice.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
TINNEVELLY.													
Average of 5 years.	11·8	11·9	12·8	13·2	12·8	12·2	12·1	12·1	12·0	12·3	12·3	12·2	12·3
1875	11·7	13·1	13·3	13·5	13·5	12·7	12·0	11·8	11·9	11·9	12·4	12·7	12·5
1876	13·1	12·3	12·2	12·3	12·3	11·5	10·8	10·5	10·4	11·2	9·8	7·8	11·2
1877	7·7	7·9	9·3	9·0	8·6	8·1	7·1	6·7	6·4	7·8	9·4	9·2	8·1
1878	9·9	10·3	9·9	8·9	9·3	7·7	7·5	7·6	8·3	9·1	8·8	8·4	8·8
COIMBATORE.													
Average of 5 years.	13·7	13·8	14·1	14·3	13·2	13·9	13·7	13·5	13·5	13·5	13·9	14·1	13·8
1875	14·0	14·6	14·5	14·3	14·7	14·0	13·8	13·8	13·0	12·9	13·7	13·4	13·9
1876	12·9	12·8	12·9	12·7	12·7	12·2	11·9	...	...	...	8·7	7·8	...
1877	7·6	8·0	8·1	8·3	7·9	7·6	6·2	6·2	6·1	8·0	8·6	8·2	7·6
1878	9·3	9·6	8·8	8·9	8·6	7·8	7·7	8·1	8·6	9·5	9·9	10·0	8·9
NILGIRIS.													
Average of 5 years.	9·6	9·9	9·7	9·8	9·7	9·5	10·1	9·8	10·1	9·5	9·7	9·6	9·7
1875	9·8	10·2	11·0	11·1	10·9	10·4	10·4	10·5	10·3	10·1	9·4	9·7	10·3
1876	10·1	9·8	9·7	10·0	10·4	9·8	9·5	9·1	8·7	7·8	6·4	6·5	9·0
1877	6·7	7·4	7·6	7·5	7·4	6·6	5·5	5·6	5·3	6·0	6·4	7·0	6·6
1878	7·7	7·3	6·8	6·8	6·9	6·7	6·7	6·9	7·1	7·4	7·5	7·6	7·1
SALEM.													
Average of 5 years.	16·7	16·3	6·5	16·5	16·6	16·1	15·6	15·6	15·8	16·4	17·0	17·4	16·4
1875	16·5	16·4	16·4	16·7	16·8	16·2	15·9	15·4	15·1	15·0	15·0	13·8	15·2
1876	13·6	14·1	13·2	13·0	13·2	12·9	12·4	12·0	11·3	10·1	7·9	6·9	11·7
1877	7·0	7·4	7·3	7·9	7·3	7·0	5·8	5·6	5·4	7·7	7·8	8·6	7·1
1878	8·5	8·6	8·6	8·8	8·8	8·1	7·9	7·4	8·3	9·7	10·4	10·7	8·8
SOUTH CANARA.													
Average of 5 years.	14·7	15·0	15·0	14·8	14·5	14·1	13·8	14·0	14·0	13·9	14·3	14·4	14·3
1875	14·1	14·6	15·4	15·2	14·9	13·8	13·7	13·8	13·8	14·0	14·5	14·8	14·4
1876	14·7	14·3	13·8	13·0	12·5	12·4	12·5	12·4	12·7	12·5	10·7	10·6	12·6
1877	9·3	9·5	10·1	10·7	9·9	8·6	8·3	7·7	7·7	8·5	9·0	10·8	9·2
1878	11·7	11·1	9·9	9·4	9·4	9·6	9·8	10·0	10·5	10·8	10·2	10·0	10·2

Cholum.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
TINNEVELLY.													
Average of 5 years.	22·4	21·8	23·3	26·6	24·9	23·5	22·8	23·0	22·5	23·2	23·1	22·1	23·1
1875	19·7	20·2	19·9	22·4	22·1	24·6	23·8	23·7	23·6	23·8	24·8	25·5	22·8
1876	26·2	24·2	23·5	23·8	24·4	22·6	20·3	19·3	19·7	20·6	16·1	11·1	21·0
1877	12·9	13·6	10·9	10·1	11·2	11·8	9·1	8·7	8·8	8·9	10·7	12·2	10·7
1878	14·3	10·7	12·1	15·2	17·1	11·3	10·8	10·8	13·0	12·2	11·9	13·2	12·7
COIMBATORE.													
Average of 5 years.	22·4	22·8	23·7	23·1	22·6	23·1	23·2	24·3	23·4	23·2	24·4	24·1	23·3
1875	21·7	21·8	22·6	21·7	22·9	23·2	23·8	23·6	21·8	23·6	21·2	22·6	22·5
1876	20·9	21·2	21·1	20·2	20·3	20·0	19·3	...	...	...	12·2	8·3	...
1877	9·2	9·9	10·3	9·6	9·0	8·6	6·8	7·4	7·1	10·4	11·0	11·1	9·2
1878	12·6	13·6	12·5	12·2	11·3	10·2	10·3	11·6	13·1	15·5	15·8	17·4	13·0
NILGIRIS.													
Average of 5 years.	17·2	16·2	17·2	16·7	15·2	16·4	16·8	17·7	18·4	18·7	18·8	19·5	17·3
1875	17·5	16·7	17·1	16·9	15·5	16·5	17·6	16·3	16·4	15·5	15·8	15·2	16·4
1876	14·1	14·9	15·3	14·0	14·2	14·8	15·0	15·7	14·4	12·5	8·8	7·4	13·4
1877	8·2	8·8	8·4	7·8	7·7	7·6	6·6	5·8	6·0	7·0	7·0	8·4	7·4
1878	9·1	10·0	9·2	9·1	8·5	8·1	8·5	9·1	10·0	12·5	13·0	14·3	10·2
SALEM.													
Average of 5 years.	34·8	33·3	31·2	31·7	30·9	31·7	31·5	30·7	30·8	32·7	34·0	33·4	32·0
1875	27·0	26·1	26·7	28·2	27·2	28·0	28·2	28·0	27·1	25·3	23·9	22·1	26·5
1876	22·1	21·6	21·0	19·9	21·7	20·7	19·3	18·9	17·5	14·4	11·4	8·3	18·1
1877	8·2	9·3	8·9	9·4	8·4	8·3	7·9	6·5	6·3	8·3	8·8	9·0	8·3
1878	9·4	9·5	9·9	10·6	10·7	9·6	9·7	10·2	11·4	16·4	16·0	15·3	11·5
SOUTH CANARA.													
Average of 5 years.	...	...	...	...	...	...	...	...	...	...	...	...	...
1875	...	...	...	...	...	...	...	...	...	...	...	...	...
1876	...	...	...	...	...	...	...	...	...	...	...	...	...
1877	...	...	...	...	...	...	...	...	...	...	...	...	...
1878	...	...	...	...	...	...	...	...	...	...	...	...	...

Ragi.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
TINNEVELLY.													
Average of 5 years.	25·6	25·8	25·7	25·9	25·3	24·0	23·2	23·4	24·1	24·9	23·6	26·2	24·7
1875	26·7	28·4	29·2	28·5	26·8	26·7	25·6	25·1	25·0	25·1	26·1	28·0	26·7
1876	29·3	27·1	26·2	25·8	25·5	24·5	22·6	22·1	21·8	22·5	16·3	11·9	23·0
1877	12·3	11·7	10·6	11·0	10·4	9·9	8·6	8·2	8·1	7·9	12·8	20·5	11·0
1878	23·1	17·4	12·0	15·4	15·2	11·3	10·2	10·7	13·0	13·8	13·2	15·0	14·2
COIMBATORE.													
Average of 5 years.	30·6	30·5	31·0	30·4	28·5	29·6	29·0	29·3	29·8	29·5	31·4	32·7	30·2
1875	29·0	28·7	28·5	29·3	28·6	27·7	28·0	27·6	25·4	24·6	25·7	25·1	27·3
1876	24·0	24·3	23·8	22·9	23·6	22·6	21·6	...	...	...	14·6	10·7	...
1877	10·2	10·5	10·8	9·9	9·5	8·8	7·8	7·0	7·8	11·0	12·8	14·2	9·9
1878	14·0	15·0	10·6	13·7	12·3	10·7	10·0	11·5	15·5	21·4	20·5	21·0	14·7
NILGIRIS.													
Average of 5 years.	21·5	20·4	20·1	20·3	19·9	19·9	20·3	20·5	20·7	20·6	20·7	22·0	20·6
1875	18·9	18·8	19·2	18·3	18·7	18·1	18·1	18·3	17·2	16·2	16·1	15·7	16·9
1876	15·8	15·5	15·6	16·3	16·6	16·4	14·2	14·9	13·9	12·2	10·0	8·4	14·1
1877	8·4	8·7	8·8	8·7	8·7	8·0	6·6	6·4	6·7	7·5	8·3	9·2	8·0
1878	10·8	9·4	8·7	8·3	7·8	8·4	8·2	8·5	10·1	13·3	14·5	14·7	10·2
SALEM.													
Average of 5 years.	37·8	36·7	36·3	37·4	36·4	37·6	35·3	34·0	37·5	39·0	40·0	39·3	37·2
1875	30·1	30·1	30·4	31·5	31·1	30·4	30·0	29·6	28·8	27·8	26·9	23·2	29·1
1876	21·7	21·4	22·1	22·8	23·5	22·8	20·7	20·1	18·3	14·6	11·3	8·7	19·0
1877	8·4	9·4	9·0	9·0	8·5	8·3	9·6	6·2	6·3	9·1	9·9	10·0	8·7
1878	11·4	10·7	9·2	12·8	12·0	10·4	10·1	10·3	13·0	16·5	17·0	18·1	12·6
SOUTH CANARA.													
Average of 5 years.	26·3	26·5	23·8	24·3	23·7	21·9	21·9	21·8	22·4	22·3	24·4	25·5	23·6
1875	24·2	23·4	22·8	22·4	21·2	20·9	19·7	19·6	19·7	20·4	20·4	19·8	21·2
1876	18·9	18·5	18·5	17·4	17·7	17·5	16·0	16·0	15·0	16·5	12·7	11·6	16·3
1877	10·6	10·7	10·9	10·9	11·0	9·8	9·6	9·2	9·2	10·0	11·7	12·4	10·5
1878	12·1	11·6	10·1	10·4	10·5	10·5	10·4	10·8	10·9	11·3	12·6	12·1	11·1

Digitized by Google

Table showing the Average Prices of Food in the Madras Presidency during 1875, 1876, 1877, *and* 1878, *compared with the Average of the previous* 5 *Years*—(Continued).

Districts.	Second-sort Rice. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
Malabar.													
Average of 5 years.	13·4	13·3	13·6	13·2	13·0	13·3	13·0	13·1	13·6	13·9	13·7	13·5	13·4
1875	13·0	12·7	13·1	13·5	13·2	13·0	12·7	12·5	13·0	13·6	13·8	13·7	13·2
1876	13·6	10·8	13·0	12·8	12·5	12·0	11·3	11·3	11·9	11·8	10·8	9·8	11·8
1877	9·1	9·4	9·7	10·0	9·5	8·7	7·8	7·5	7·8	9·9	10·1	10·6	9·2
1878	10·1	10·4	9·6	9·3	9·0	8·2	8·1	8·7	9·0	9·7	9·2	9·3	9·2

Districts.	Cholum. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
Malabar.													
Average of 5 years.	...	21·8	18·2	19·8	23·5	21·3	...	...	33·8	...	...	...	27·3
1875	...	...	...	...	...	...	...	...	...	...	...	..	...
1876	...	...	...	...	...	...	...	...	...	...	...	...	...
1877	...	9·7	...	...	...	...	...	...	...	...	...	...	9·7
1878	...	...	...	...	...	...	...	...	...	14·8	14·3	15·6	14·9

Districts.	Ragi. January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
Malabar.													
Average of 5 years.	26·1	24·5	27·1	25·6	25·6	26·1	25·1	25·7	25·6	26·1	26·4	26·9	25·9
1875	24·4	23·4	22·6	21·4	20·1	22·0	21·6	21·9	22·4	24·6	24·0	23·0	26·6
1876	21·3	19·2	17·5	18·2	19·5	18·9	17·7	18·5	18·5	14·9	12·0	11·5	17·3
1877	11·0	11·4	12·0	11·8	11·0	9·4	9·5	8·6	9·0	9·7	11·5	13·3	10·7
1878	12·4	11·5	10·6	9·8	10·2	10·5	10·4	10·6	11·1	11·1	14·0	14·1	11·3

Digitized by Google

REGISTRATION OF VITAL STATISTICS.

General remarks.

21. Registration of births and deaths, if not improved, has not I think retrograded during 1878. The disturbing influences of the famine on the machinery of village life had passed away. The wandering of the famine-stricken had in a great measure ceased, and village officials who had abandoned their homes for relief works had returned to their own occupations and public duties. In regard to mortality occurring in famine-relief camps their is every reason to suppose that in 1878 all these deaths are fairly accounted for in the returns. In some districts the work of registration is better done than in others, but in all there is room for improvement, and complete returns will never be obtained until registration is made compulsory by law, in villages as well as in towns. A preliminary report on the birth and death registration in 1878 was submitted to Government on the 14th March 1879 (Proceedings No. 508, Public Department, 4th April 1879). The figures now submitted vary but slightly from those already before Government, and include a few births and deaths in scattered populations which had not been included in the monthly returns.

BIRTHS.

22. The total number of births registered in the native population of the Presidency during 1878 was 348,657. Of these 180,326 were males and 168,331 females. The proportion of male to female children born was 107·1 to 100 females, this proportion being almost exactly the same as in 1877.

The general birth-rate of the whole Presidency was, of males, 12·3 per mille, females 11·6 per mille, or for both sexes 11·9 per mille of the 1871 population.

23. It has been explained in previous reports that in calculating ratios of births and deaths no allowance has been made for yearly increment of population, because we have to await the results of the next decennial census of the population, before we can get the requisite data for calculating the yearly increment. Consequently all ratios in this and former reports are worked on the actual population of 1871.

24. Throughout much of the famine area there is reason to fear that the double influence of famine in hindering reproduction, and causing excessive mortality, has caused a loss, rather than increment, in numbers since 1871, but whatever the results in these respects may be, it will be impossible to frame from actual data a figure showing normal yearly growth of population, until the census results of 1881 have been tabulated. The ratios of births and deaths must be accepted with this explanation. The great fact in regard to birth registration during 1878 was the remarkable diminution in the number of children born as compared with previous years.

25. The following table shows the population, number of births, and ratios of births to population for a series of years:—

Years.	Population.	Births.	Birth Ratio per Mille.
1869	24,633,127	452,410	18·5
1870	24,125,526	439,063	18·1
1871	24,555,046	517,109	21·0
1872	30,147,779	554,379	18·3
1873	30,287,842	538,123	17·7
1874	30,360,221	580,709	19·1
1875	30,278,903	638,771	21·1
1876	29,157,056	632,113	21·6
1877	29,209,542	477,447	16·3
1878	29,127,205	348,657	11·9

26. To show how the famine has affected the productive powers of the people, we may take the results of birth registration for two years prior to the famine. In 1875 and 1876 there were registered a total of 1,270,884 births. In 1877 and 1878 only 826,104 births were recorded, showing an apparent loss of population from diminished births in the two years of 444,780.

Digitized by Google

27. But the *registered* births or deaths in India do not represent the whole of the additions to, or subtractions from, the living population. It is necessary to be explicit on this point as the mistake has been made of using the registration figures as if they represented absolute instead of relative truths..

In our two best years of birth registration we have only succeeded in accounting for 21·3 births per thousand of the population. More accurate figures in regard to some towns and certain areas in which registration is habitually good, seem to point to from 35 to 40 per mille as a moderate birth-rate for an Indian population, in normal seasons. I have good reason to assume that before the famine the general birth-rate of the people was not less than 38 per mille annually, and on the basis of such a calculation the actual loss of population by decreased births, instead of 444,780, as the registered figures would imply, must have been about 794,000 in the two years, 1877 and 1878.

28.. The influence of starvation on reproduction has not hitherto received much notice. I drew the attention of Government to the subject on several occasions during 1877, and in my annual report for that year and appendix "On the Sanitary and Medical Aspects of the Famine" I produced all the evidence I had been able to collect. Since then I have had an opportunity of perusing the birth and death returns of the Bombay Presidency for 1877 and 1878, and in regard to the area of that Presidency affected by famine the returns completely corroborate the experience noted by myself in Madras.

29. If it be as I have stated, that the falling off in births is most marked in the districts which were most severely affected by food scarcity, evidence to this effect will be afforded in the district returns. The following tables show the number and ratio of births to population in all the districts, but I have thought it best to classify the famine area of 1877 separately, so as to show the remarkable degree in which the births have fallen off in that particular tract of country. The famine area of 1877, with a population of 18,416,953, shows only 162,367 births in 1878 or in the ratio of 8·8 per mille against an average of 5 years before the famine of 20 per mille.

The districts in which there was no actual famine in 1877, with a population of 10,710,252, have registered 186,290 births in 1878 or in the proportion of 17·2 per mille against an average of 19·9 per mille in the five years ending 1876.

30. These facts show in the clearest way that the birth-rate in the famine districts had fallen to one-half (from 17·3 to 8·8) of the ratio in the non-famine districts. But even as regards these latter, there was so much distress in them in 1878, owing either to bad seasons, or continued high prices of food, that a very perceptible falling off of births was noticed, especially in Kistna, Tanjore, Canara and Malabar.

Births in 1878—Famine Districts.

Districts.	Population.	Births in 1878.	Ratio per 1,000 of Population.	Average Ratio of 5 years ending 1876.
Nellore	1,376,483	4,937	3·6	13·0
Madras	381,926	14,679	38·4	26·2
Chingleput	984,523	14,238	15·2	23·0
South Arcot	1,755,324	17,955	10·2	18·3
Trichinopoly	1,199,155	17,506	14·6	24·9
Madura	1,329,207	9,924	7·4	18·4
Tinnevelly	1,693,629	23,628	13·9	18·6
Kurnool	914,233	3,073	3·3	19·5
Cuddapah	1,350,967	5,781	4·3	17·0
Bellary	1,665,815	8,644	5·1	22·4
North Arcot	2,014,254	14,523	7·2	22·8
Salem	1,966,362	14,085	7·1	24·3
Coimbatore	1,762,679	12,501	7·1	15·7
Nilgiris	72,396	943	13·02	21·5
Total ...	18,416,953	162,367	8·8	20·0

Digitized by Google

Births in 1878—Non-famine Districts.

Districts.	Population.	Births in 1878.	Ratio per 1,000 of Population.	Average ratio of 5 years ending 1876.
Ganjam	1,002,464	15,875	15·8	19·3
Vizagapatam	1,544,529	22,105	14·3	14·4
Godavari	1,592,103	30,027	18·8	18·1
Kistna	1,452,066	21,219	14·6	17·8
Tanjore	1,972,820	48,726	24·7	29·3
South Canara	918,042	16,082	17·5	20·3
Malabar	2,228,228	32,256	14·4	18·2
Total ...	10,710,252	186,290	17·2	19·9

31. There is only one point to be noticed in reference to the Town of Madras showing no apparent decrease in its birth-rate during the famine period. The town is not only a revenue district, but a Municipality, and of late years the Municipal authorities have enforced the powers confided to them of compelling the registration of births, and in this way a great many births really due to a migratory population have been included in the town returns. In the famine year the Madras population was probably nearly doubled. The population continued to be augmented all through 1878 and the ratio of births to actual population is therefore not correct, but there is this fact also to be noticed in regard to the Madras resident population that the famine, while bringing numbers of their dependants from the Provinces into the town, did not press so severely on the residents. There was ample work for the able bodied of all classes and a large amount of gratuitous and charitable relief, both public and private, and the condition of the people in the town, never became so deplorable, as in distant provinces, so that there was no reason to suppose that the fecundity of the population was affected as it was in other parts where the difficulties in feeding the people were so great. The great and abnormal trade in food-grains must have caused a free circulation of money amongst the laboring classes in the town. As a fact, we know that thousands of able-bodied men came in from the districts on account of the grain trade, and that during the best part of 1877 they received higher wages than they ever got in their lives. The average earnings of coolies in moving grain from the beach to the warehouses or railway stations was from 8 annas to 1 rupee a day. Boatmen made from 3 to 5 rupees a day, and their surplus earnings gave full employment to the local goldsmiths.

It is necessary that the facts in regard to the Madras population should be understood as in that town only of the whole area subjected to famine influences was the birth-rate not perceptibly affected.

32. In regard to births in the famine area I had, in 1877, predicted that the minimum would be generally reached in Arpil or May 1878, and the results were precisely as foretold. In some of the famine districts the recovery in the birth-rate subsequent to April or May was progressive, and indicative of a speedy return to normal conditions. In Chingleput, for instance, the birth-rate in May was in the proportion of only 6·8 per mille of population per annum, but in October, November and December of that year the ratio had reached upwards of 27 per mille. In Tinnevelly the ratio went up from 9·6 per mille in May to 20·1 in December. In North Arcot from 4·0 in May to 15·7 in December, and in Salem from 3·9 in May to 13·3 in December. But in the districts of Nellore, Kurnool, Cuddapah and Bellary where, as we know, famine was most severe in 1877, and distress and suffering continued all through 1878, the improvement in the birth-rates was exceedingly slight and ill-defined up to the end of the year.

33. In Nellore the birth-rate in May was 3·3 per mille. It rose in October to 4·5 but fell again in December to 4·4 per mille. In Kurnool the births increased from the ratio of 2·3 per mille in July, to 5·1 per mille in December. In Cuddapah from 3·4 per mille in April to 5·5 in December. In Bellary from 4·2 per mille in April to 6·1 per mille in December. All these ratios were only from one-fourth

Digitized by Google

to one-fifth of the usual registrations in these districts, and it may fairly be said of these populations that they will hardly have recovered their normal fertility during the present year 1879.'

34. In the districts classified as "non-famine" districts, it is to be noticed that births fell off largely at the end of the year, especially in Ganjam, Vizagapatam and Malabar. In the former districts the diminished births correspond with the period of known food scarcity and distress. In Tanjore the birth-rate after April began to return to its normal proportions. This district presents an admirable example of the influence of food scarcity on fecundity. The average birth-rate before the famine was 29·3 per mille. In January 1878 the ratio had reached 23·5 per mille. In April (corresponding with August 1877 as to period of conception) the births fell to 19·1 per mille, and in September the ratio was 31·1 per mille and had nearly recovered its normal proportion. In this district it is evident that the food pressure amounting to famine was of short duration and that it must have been relieved to a great extent after October and November 1877.

35. The experience acquired during this famine leads me to state that there is no more delicate test of the condition of the laboring poor in regard to the ravages of famine, than the degree in which the reproductive powers are affected. The facts of the rapid revival of the population in Tanjore and Chingleput, of the slower recovery in North Arcot, Salem and Coimbatore, and of the tremendous blow exercised on the vitality of the population in Kurnool, Nellore, Bellary and Cuddapah are well shown in the monthly birth ratios.

Tables of these for the famine and non-famine tracts are appended.

Ratio of Births per Mille per Annum, 1878—*Famine Districts*.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Nellore	2·7	2·5	2·6	2·9	3·3	3·9	4·1	3·9	3·6	4·5	4·3	4·4
Madras	37·1	31·3	34·8	34·2	37·2	40·2	43·9	48·7	43·4	39·8	38·0	36·8
Chingleput	7·1	5·5	5·4	4·5	6·8	10·1	14·3	21·2	24·5	27·9	27·9	27·4
South Arcot	9·5	6·8	6·5	5·7	6·6	6·7	9·5	9·7	11·1	14·0	18·2	17·9
Trichinopoly	13·8	12·8	12·8	10·9	10·8	11·2	14·9	15·1	16·1	17·4	19·4	19·5
Madura	7·4	6·1	6·2	4·9	4·7	5·8	6·4	6·0	7·2	10·1	11·2	13·1
Tinnevelly	14·3	11·7	12·4	11·8	9·6	10·1	12·7	12·2	13·8	17·6	19·8	20·1
Kurnool	3·7	3·0	3·0	3·1	3·4	2·7	2·3	2·4	3·0	3·7	4·3	5·1
Cuddapah	4·4	3·4	3·5	3·4	4·5	4·4	4·5	3·6	4·0	4·7	4·7	5·5
Bellary	5·5	4·7	4·4	4·2	4·3	4·6	5·0	4·7	5·4	6·3	6·3	6·1
North Arcot	5·8	4·2	3·6	3·1	4·0	4·3	6·7	6·7	9·7	10·0	14·8	15·7
Salem	6·0	5·5	4·3	3·8	3·9	3·9	6·1	7·1	8·0	10·9	12·2	13·3
Coimbatore	6·1	5·0	5·1	4·3	4·3	4·8	5·6	6·6	8·3	10·4	11·8	12·1
Nilgiris	11·2	11·5	12·7	14·8	11·9	12·0	13·0	13·5	13·5	13·3	11·7	12·6
Non-famine Districts.												
Ganjam	15·5	14·5	16·3	17·4	19·2	18·4	14·1	19·1	16·9	16·6	14·6	10·4
Vizagapatam	15·6	11·2	13·7	13·3	13·4	16·7	15·1	20·1	18·1	13·9	10·7	9·4
Godavari	19·5	17·2	12·9	15·1	18·6	18·9	17·7	19·6	23·5	22·6	22·0	18·3
Kistna	12·4	9·1	8·3	10·1	12·3	14·4	15·4	17·7	17·8	20·1	19·5	17·8
Tanjore	23·5	19·5	19·9	19·1	19·6	21·7	26·3	27·3	31·1	30·8	29·8	27·2
South Canara	17·6	15·0	14·0	15·6	17·9	22·8	25·1	19·9	15·4	16·7	14·5	15·2
Malabar	11·7	10·5	11·2	13·8	16·5	17·4	19·3	15·4	15·8	15·7	13·3	10·5

DEATHS.

36. The total of deaths registered in 1878 was 810,921, and the population furnishing returns according to the Census of 1871 was 29,127,205. (The great Zemindari tracts of the Madura District and the wild hilly tracts of Ganjam and Vizagapatam are not included in these returns.) The registered death-rate to population was 27·8 per mille against a five years average of 18·1 per mille, previous to the famine year.

37. Of the deaths registered 426,428 were males and 384,493 females. The proportion of male to female, deaths was still higher than usual. In the famine year

Digitized by Google

of 1877 this proportion was 122·6 males to 100 females, in 1878 the proportion had sunk to 110·9 males to 100 females. There was much difference in various districts in the proportion of male to female mortality. In the districts named in the margin the male deaths were much in excess of the average. Taking the deaths of the sexes separately, the male death-rate was 29·1 per mille and the female 26·5.

Ganjam	123·7
Nellore	125·7
South Arcot ...	115·3
Madura	115·7
Coimbatore ...	118·4
Malabar	128·7

38. The registration returns have confirmed the statistical evidence of the famine-relief camps, that mortality resulting from distress, was much more marked in men than in women. The registration results of 1878 show generally a decline in the unusual mortality of males. The average registration of the five years before the famine shows 110·4 male to 100 female deaths; throughout the year deaths were numerous in the worst famine districts, Kurnool, Cuddapah and Bellary, and also in Ganjam, Godavari and South Canara, which until 1878 did not suffer much from the famine or high prices of food.

39. The following tables show the death registration in regard to the area affected by famine in 1877, as compared with the area not so affected :—

Deaths in 1878—*Famine Districts of* 1877.

Districts.	Population.	Deaths in 1878.	Ratio per 1,000 of Population.	Ratio of Average for 5 years ending 1876.
Nellore	1,376,483	38,772	28·2	13·9
Madras	381,926	17,974	47·1	34·3
Chingleput	934,523	16,961	18·1	19·5
South Arcot	1,755,324	40,618	23·1	16·7
Trichinopoly ...	1,199,155	29,032	24·2	19·7
Madura	1,329,207	31,977	24·1	12·2
Tinnevelly	1,693,629	37,969	22·4	18·9
Kurnool	914,233	43,932	48·0	18·4
Cuddapah	1,350,967	55,036	40·7	17·6
Bellary	1,665,815	76,137	45·7	18·6
North Arcot	2,014,254	50,880	25·2	21·1
Salem	1,966,362	49,455	25·1	21·7
Coimbatore	1,762,679	29,499	16·7	15·3
Nilgiri	72,396	1,929	26·6	19·0
Total ...	18,416,953	520,171	28.2	19·1
Non-famine Districts of 1877.				
Ganjam	1,002,464	29,334	29·2	14·3
Vizagapatam	1,544,529	28,055	18·1	14·5
Godavari	1,592,103	59,517	37·4	19·2
Kistna	1,452,066	41,928	28·8	16·9
Tanjore	1,972,820	56,023	28·4	23·8
South Canara ...	918,042	33,412	36·4	17·8
Malabar	2,228,228	42,481	19·1	17·1
Total ...	10,710,252	290,750	27·1	17·6

40. *Deaths according to age.*—The results of age classification are very striking, especially in regard to the small number of children under one year of age dying in 1878. While in 1877 109,849 deaths of infants were registered, only 63,558 deaths of this class were entered in 1878. This no doubt was due to the fact that fewer children were born in the latter year, and also that famine had been very severe on infants at the breast in 1877.

41. A large proportionate number of deaths of persons above 50 years of age are entered in 1878, and the explanation is probably this, that while some old people survived the famine year, they were too much enfeebled to recover, and dropped off gradually in the next year.

Digitized by Google

42. The following table gives the comparative results of deaths at different ages:—

Ages.	1873.	1874.	1875.	1876.	1877.	1878.
Infants unable to walk (under 1 year) ...	93,019	88,856	96,457	90,586	109,849	63,558
Boys and girls, 1 to 12 years	111,517	110,690	149,449	155,514	405,484	174,074
Adults (men and women) 12 to 50 years.	162,828	172,011	231,661	262,824	635,706	335,811
Old people (do.) over 50 years ...	139,530	145,291	163,693	171,460	405,273	237,478

43. *Deaths according to classes.*—Amongst 432,812 Native Christians 9,102 deaths were registered, the ratio of mortality to population being 21·0 per mille. Amongst 1,780,478 Mahomedans 40,676 deaths were reported, or in the ratio of 22·8 per mille. The mortality ratio of the Hindu community, including all castes, was 28·3 per mille. I called attention in my report of 1877 to the marked difference in the effects of famine on the Mussulman and Hindu, and I showed that the Mahomedans had not felt the effects of the famine in anything like the same proportion as did the lower classes of the Hindus. The same observation may now be made in regard to Native Christians, the returns for whom are now separately shown. Their church organization no doubt helped them at a grave crisis. Foreign money from many countries, apart from the general Mansion House Fund, enabled the pastors to watch and feed their flocks, and to stay that fatal wandering that slew so many thousands of the laboring poor.

During the year reports have been received of large additions to the Native Christian churches, but of course the number of converts cannot be shown here, the figures taken being the census figures of 1871. But the lower classes of people who have embraced Christianity, have evidently been in a more favorable position in reference to their means of keeping alive, during a time of trial and distress, than the hordes of out-caste races, who were out of the pale of sympathy of the higher classes of natives. It is no cause for surprise that those of the Native community who have looked on and seen the care given to the material wants of the Christian poor, should have thought of casting in their lot with the Christians.

44. The following table shows the population and total deaths in each year from 1869 to 1878. While the mortality was only about one-half of what it was in 1877 it was higher than in any other of the ten years, and this too, notwithstanding in 1878, there was very little prevalence of epidemic cholera or other zymotic disease. The excess mortality of 1878 was largely due to the prolonged effects of famine, and to the malarious fevers which followed on abnormal disturbance of the seasons and rainfall.

Years.	Population.	Total Deaths.	Ratio per 1,000 of Population.
1869	24,633,127	451,981	18·3
1870	24,125,526	451,020	18·6
1871	24,555,046	444,371	18·0
1872	30,147,779	501,482	16·6
1873	30,287,842	506,894	16·4
1874	30,360,221	516,848	17·0
1875	30,278,903	641,260	21·1
1876	29,157,056	680,384	23·3
1877	29,209,542	1,556,312	53·2
1878	29,127,205	810,921	27·8

45. We are now in a position to take stock of what the famine has cost us.

We have already seen that if the births in 1877 and 1878 had been equal to those of the two preceding years, we should have registered 444,780 more, and as a matter of fact, in the two years, 1877 and 1878, we have registered

Digitized by Google

1,318,673 deaths in excess of the mean registration of two years. The account according to registration, stands as follows:—

By fewer births registered in two years	444,780
By excess of mortality	1,318,673
	1,763,453

46. But while these figures show a loss of 1,763,453 of population in two years, above the average, they do not embrace the whole losses of population. The highest ratio of birth registration for the whole Presidency was 21·6 per mille, while it is quite certain that the actual births have not fallen below 35 to 40 per mille. Taking the normal birth-rate at 38 per mille, the number of births short in 1877 and 1878 must have been about 794,000. And as regards deaths, the figures for Municipalities and other defined centres show that the village lists omit on the whole about one-third of the actual mortality. Assuming this to be the normal rate of omission, it is quite evident that the actual excess of deaths in 1877 and 1878 over the mean of former years must have been 1,978,009 instead of 1,318,673.

The actual loss of population therefore, by diminished births, and excess of deaths in these two years, has not fallen very much short of three millions.

47. These results, deduced from the actual registration of births and deaths, and by the assumption of a definite proportion of both events unregistered, tallies very closely with the observed results of the test census in certain selected portions of the famine area. According to this test census (which was taken in March 1878) and assuming the losses in uncensused areas to correspond with those actually tested, the famine losses, allowing for increment of population from 1871 to 1876, could not be set down at less than three millions.

48. In the following table is given the results of registration under the principal diseases, as compared with the results of former years. The history of the chief diseases causing death will be dealt with in the next chapter.

Years.	Total Deaths.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injuries.	Other causes.
1866	600,106	200,961	23,106	110,102	...	9,047	256,890
1867	372,026	33,205	27,907	112,511	...	8,613	189,790
1868	390,959	8,036	34,330	105,692	...	9,242	233,659
1869	451,981	21,034	17,448	132,346	...	9,310	271,843
1870	451,020	55,867	11,252	151,027	...	12,325	220,549
1871	444,371	17,656	20,823	192,469	38,928	15,323	159,172
1872	501,482	18,247	39,074	214,148	39,387	15,150	180,476
1873	506,894	840	51,784	222,843	36,392	14,251	180,784
1874	516,848	313	48,343	226,220	37,993	13,065	190,914
1875	641,260	94,546	24,775	252,042	37,484	12,421	219,992
1876	680,384	148,193	23,469	230,092	38,176	11,175	229,279
1877	1,556,312	357,430	88,821	469,241	133,866	16,460	491,494
1878	810,921	47,167	56,360	374,443	48,088	15,007	269,861

Digitized by Google

SECTION II.

GENERAL HISTORY OF CHIEF DISEASES.

CHOLERA.

49. The mortality due to cholera, according to the registers, was very slight in comparison with the enormous fatality of the epidemic of 1877. The life-period of a cholera epidemic is not often prolonged beyond three or four years. In some districts it dies out completely in a shorter time. The new epidemic commenced in 1875, and as might have been anticipated, the end of 1878 saw it nearly extinct, especially in those districts which had been invaded so early as 1875.

50. The total of registered cholera deaths in 1878 was 47,167. Males 25,463 and females 21,704. The ratio of mortality to population from this cause was 1·6 per mille in 1878 against the large proportion of 12·2 per mille in 1877.

51. In regard to seasonal prevalence, the cholera deaths in January 1878 were 4,439, and from this month the mortality declined until April when 2,726 deaths were registered. In May there was a distinct increase in the cholera deaths, due to the re-appearance of the disease in tracts of country which had for some months previously been free of it. The maximum mortality of the year was reached in July when 8,343 deaths were registered.

In November the registered mortality had fallen to 983, but in the following month there was a slight increase.

52. In January 1878 deaths from cholera were noted in 18 out of the 21 Revenue districts, in December there were deaths in only twelve districts, and the general indications seemed clear that the extinction of the epidemic, now of from four to five years duration, was merely a question of a few months.

53. In 1878 the parts of this Presidency principally affected by cholera were the northern districts of Ganjam, Vizagapatam, Godavari and Kistna. In these four districts 28,619 deaths occurred. Nellore, Chingleput and Madras escaped with 463 deaths. In South Arcot, Tanjore, Kurnool, Cuddapah, and Bellary there occurred a total of 14,623 deaths, and the districts named were those principally attacked. In December no cholera deaths were reported from Nellore, Madura, Tinnevelly, Kurnool, Cuddapah, Bellary, North Arcot, Coimbatore and Nilgiris. In Madras, Trichinopoly, Salem and South Canara the deaths were reckoned by units. In fact, over the whole of Southern India cholera was practically extinct, except in the four northern districts of Ganjam, Vizagapatam, Godavari, and Kistna, and a few isolated cases in South Arcot, Tanjore, and Malabar. Since the end of the year 1878 there has been no increase in the area affected, and within the affected area the disease is declining.

54. It is easy enough to chronicle the history and progress of a cholera epidemic, to trace it from its inception to its maximum of prevalence, and decline, and to forecast in a certain degree its course, but this knowledge unfortunately does not help us to understand the intimate nature and causes of the disease, nor its practical treatment by the physician. A great epidemic has come and gone, and left us practically but little wiser for the event.

55. At one time it seemed probable that a new epidemic movement had occurred, and that the Deccan and Ceded Districts had been invaded by a new

Digitized by Google

epidemic, before we had, in Southern India, entirely got rid of the old. The materials for forming a correct judgment on this point, as regards the progress of cholera in Central India and Bombay are not before me, but I believe I am right in surmising that the cholera of those districts in 1878 was a renewal of an existing epidemic, rather than a new invasion.

56. We have certainly had demonstrated to us on a large scale, how the concomitant conditions of famine, help to predispose the people to fatal attacks of cholera as well as of other diseases, and we know that these conditions (*i.e.*) bad and insufficient food, scant and doubtful water-supply, overcrowding on public works, or resting places, and concentration of the poverty-stricken over limited areas, always do tend to aggravate whatever disease may be prevailing.

The cholera mortality in the several districts now falls to be noticed.

Ganjam.

57. The total mortality registered in this district was 8,384. Cholera was increasing in the first month of the year, and attained its highest development in March, April and May. By the end of the year the epidemic had nearly subsided. The population of this district suffered much from privation in the beginning of the year. The late rains of 1877 had failed and crops were short and food-prices higher in 1878 than in 1877. The Municipal town of Berhampore (population 21,524) lost 412 persons from cholera while the other Municipal town in the southern portion of the district (Chicacole, population 15,538) had only 41 cholera deaths. In both of these Municipal towns the maximum mortality occurred in June, and cases continued from January to November.

The number of villages in the district is 5,174 and cholera deaths were reported in 748.

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Ganjam District during each Month of the Year 1878.

Taluks ...	Goomsur.				Berhampore Municipal Town.				Berhampore.				Chicacole Municipal Town.			
Population ...	141,935.				21,524.				148,130.				15,538.			
Total No. of Villages in each Circle.	1,035.				1.				465.				1.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January ...	6	4,730	22	4·6	1	21,524	33	1·5	12	26,905	46	1·7	1	15,538	3	0·1
February ...	12	8,899	37	4·1	1	21,524	24	1·1	24	17,495	102	5·8	1	15,538	3	0·1
March ...	31	19,300	154	7·9	1	21,524	60	2·7	31	64,025	432	6·7	1	15,538	6	0·3
April ...	26	15,376	130	8·4	1	21,524	36	1·6	58	32,487	209	6·4	1	15,538	5	0·3
May ...	16	10,887	48	4·4	1	21,524	74	3·4	54	52,133	214	4·1	1	15,538	6	0·3
June ...	30	12,971	89	6·8	1	21,524	132	6·1	68	63,549	296	4·6	1	15,538	16	1·0
July ...	23	7,826	88	11·2	1	21,524	45	2·0	50	40,851	185	4·5	1	15,538	1	0·06
August ...	21	10,068	62	6·1	1	21,524	5	0·2	22	21,196	63	2·9	...	...	...	...
September ...	9	6,072	21	3·4	1	21,525	2	0·09	2	1,210	2	1·6	...	...	...	...
October ...	2	572	7	12·2	...	...	...	...	...	...	...	...	...	...	...	...
November ...	1	848	1	1·1	1	21,524	1	0·04	1	568	3	5·2	1	15,538	1	0·06
December ...	7	5,194	25	4·8	...	...	...	...	1	568	2	3·5	...	...	...	...
Total ...	107	68,753	684	10·7	1	21,524	412	19·1	152	126,059	1,554	12·3	1	15,538	41	2·6

Taluks ...	Chicacole.				Zemindaries.				Total.			
Population ...	151,885.				523,452.				1,002,464.			
Total No. of Villages in each Circle.	335.				3,337.				5,174.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January ...	16	22,339	72	3·2	42	45,247	324	7·1	73	136,283	590	3·6
February ...	13	20,044	64	3·1	67	49,856	411	8·2	116	133,356	641	4·7
March ...	40	48,069	276	5·7	137	93,008	528	8·8	291	261,464	1,756	6·7
April ...	37	45,688	192	4·2	180	135,501	1,001	7·3	363	266,114	1,573	5·9
May ...	49	57,761	242	4·1	174	117,130	846	7·2	295	274,923	1,430	5·2
June ...	12	30,677	73	2·5	89	65,887	415	6·2	201	200,146	1,031	5·1
July ...	14	26,833	46	1·7	108	88,701	696	7·8	197	201,323	1,061	5·2
August ...	7	5,065	32	6·3	32	32,850	133	4·4	83	90,723	295	3·2
September ...	1	4,675	3	0·6	9	16,640	20	1·2	22	50,123	48	0·9
October ...	2	2,984	5	1·6	2	920	6	6·5	6	4,476	18	4·0
November ...	2	2,342	2	0·8	...	...	...	...	6	40,820	8	0·1
December ...	...	...	...	...	2	3,502	6	1·7	10	9,264	33	3·5
Total ...	111	108,567	1,007	9·2	376	247,256	4,636	13·9	748	582,697	8,384	14·3

Vizagapatam.

58. Total deaths 4,456. The epidemic seems to have affected every part of the district, and to have prevailed with varying degrees of intensity throughout the year. It was more severe in the Municipal towns than in the rural districts. It was generally dying out by the end of the year; but in one or two circles the deaths show renewed activity in December. In this month a native regiment marching to Vizagapatam was attacked by cholera at Rajahmundry; and during its subsequent progress through the southern taluks the regiment lost many men and followers. The increased cholera deaths in December appears to be connected with the march of this infected body of troops over the north trunk road so far as Vizagapatam. In this district severe distress existed for many months in the sea-board taluks.

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Vizagapatam District during each Month of the Year 1878.

Taluks ...	Sarvasiddhi.				Narsapatam.				Ankapalle.				Municipal Town Ankapalle.				Vizagapatam.				Municipal Town Vizagapatam.				Viraville.			
Population ...	107,430.				65,831.				92,482.				13,038.				44,218.				31,462.				157,358.			
Total No. of Villages in each Circle.	155.				228.				193.				1.				61.				1.				247.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January ...	7	9,459	32	3·3	...	...	...	...	7	5,911	27	4·5	1	13,038	23	1·7	7	11,063	27	2·4	1	31,462	8	0·2	1	4,538	2	0·4
February ..	4	7,073	21	2·9	...	...	...	..	2	2,265	6	2·6	...	...	...	...	1	1,236	3	2·4	1	31,462	1	0·03	...	...	...	...
March ...	1	756	1	1·3	...	...	...	...	1	1,033	1	0·9	...	...	...	...	2	2,805	2	0·7	1	31,462	1	0·03	...	...	...	...
April ...	1	852	2	2·3	...	...	...	...	5	24,150	22	0·9	...	...	...	...	4	6,100	11	1·8	1	31,462	4	0·1	...	...	...	...
May ...	3	4,414	5	1·1	3	10,362	11	1·0	11	10,209	35	3·4	...	...	...	...	8	13,560	21	1·5	1	31,462	1	0·03	8	9,396	76	8·0
June ...	22	31,032	115	3·7	5	12,880	13	1·0	14	20,396	83	4·1	1	13,038	1	0·07	22	23,394	100	4·2	1	31,462	1	0·03	4	7,368	11	1·5
July ...	26	32,767	120	3·6	7	10,357	38	3·6	17	34,139	106	3·1	1	13,038	8	0·6	35	40,887	131	3·2	1	31,462	57	1·8	...	...	...	...
August ...	19	22,791	45	1·9	13	14,085	71	5·1	5	11,402	15	1·3	1	13,038	16	1·2	32	34,131	160	4·7	1	31,472	23	0·7	1	707	2	2·8
September ...	6	13,486	11	0·8	4	5,614	64	11·4	...	...	...	...	1	13,038	9	0·6	4	7,280	10	1·3	1	31,462	4	0·1	...	...	...	...
October ...	2	2,861	3	1·0	1	3,241	2	0·6	..	...	...	...	..	...	...	...	...	...	...	..	1	31,462	1	0·03	...	...	...	...
November ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	404	2	4·9	1	31,462	2	0·06	...	..	...	...
December ...	4	9,842	9	0·9	...	...	...	...	1	1,910	17	8·9	1	13,038	33	2·5	2	1,092	25	22·9	1	31,452	4	0·1	...	...	...	...
Total ...	61	83,237	364	4·3	22	35,117	199	5·6	44	63,188	315	4·9	1	13,038	90	6·8	70	77,276	492	6·3	1	31,462	107	3·4	12	18,057	91	5·0

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Vizagapatam District during each Month of the Year 1878—(Continued).

Taluks	Bimlipatam.				M. T. Bimlipatam.				Srungavarapukota.				Vizianagram.				M. T. Vizianagram.				Gajapathinagaram.			
Population	70,023.				8,601				121,876.				113,777.				20,164.				110,861.			
Total No. of Villages in each Circle.	113.				1				192.				153.				1.				218.			
Months.	No. of Villages affected	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	2	1,473	9	6·1	1	8,601	2	0·2	...	...	...	...	...	...	...	...	1	20,164	1	0·04	4	13,329	6	0·4
February	...	...	...	...	...	...	...	...	...	...	...	...	2	3,431	15	4·3	1	20,164	1	0·04	1	544	1	1·8
March	1	1,047	6	5·7	1	8,601	2	0·2	...	...	...	...	3	10,981	3	0·2	1	20,164	12	0·5	9	11,269	31	2·7
April	3	3,677	5	1·3	1	8,601	2	0·2	...	...	...	...	5	4,145	18	4·3	1	20,164	12	0·5	13	13,869	39	2·8
May	3	6,762	6	0·8	...	...	...	...	...	...	...	...	1	1,007	2	1·9	1	20,164	6	0·2	15	20,339	38	1·8
June	15	17,991	61	3·3	1	8,601	4	0·4	...	...	...	...	4	3,214	26	8·1	1	20,164	23	1·1	13	20,680	80	3·8
July	17	25,286	84	3·3	1	8,601	10	1·1	...	...	...	...	5	6,106	32	5·1	1	20,164	32	1·5	13	12,128	39	3·2
August	20	32,654	75	2·3	1	8,601	19	2·2	...	...	...	...	2	9,538	5	0·5	1	20,164	20	0·9	4	5,663	5	0·9
September	9	13,284	42	3·1	...	...	...	...	...	...	...	...	...	...	...	...	1	20,164	1	0·04	1	617	2	3·2
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	243	1	4·1
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	1	2,156	4	1·8	1	8·601	1	0·1	...	...	...	...	1	3,323	1	0·3	...	...	...	...	...	...	...	...
Total ...	49	65,797	292	4·4	1	8·601	40	4·6	...	...	...	...	15	21,238	102	4·8	1	20,164	108	5·3	54	66,852	242	3·6

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Vizagapatam District during each Month of the Year 1878—(Continued).

Taluks	Chipurupalle.				Salur.				Bobbili.				Palkonda.				Parvatipur.				Total.			
Population	119,148.				69,512.				121,601.				165,960.				111,187.				1,544,529.			
Total No. of Villages in each Circle.	371.				217.				169.				341.				253.				2,915.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	3	4,800	17	3·5	1	10,760	2	0·1	7	10,008	68	6·7	14	24,068	115	4·7	1	1,010	1	0·9	58	169,704	340	2·0
February	...	...	...	...	1	10,760	5	0·4	5	6,847	81	4·5	17	23,536	32	1·3	9	5,570	22	3·9	44	112,888	188	1·2
March	10	17,787	58	3·2	14	26,610	172	6·4	23	40,987	188	3·3	49	46,422	214	4·6	13	20,538	73	3·5	129	240,412	714	2·9
April	15	17,751	74	4·1	9	18,189	27	1·4	15	30,507	93	3·0	47	45,901	136	2·9	12	22,599	88	3·9	132	247,967	533	2·1
May	9	15,522	46	2·9	6	23,813	15	0·6	14	30,542	66	2·1	22	27,222	55	2·0	17	23,699	72	3·0	122	248,472	455	1·8
June	13	9,622	48	4·9	5	18,174	23	1·3	15	36,194	37	1·0	8	17,983	20	1·1	12	18,431	43	2·3	156	310,624	688	2·2
July	5	5,839	11	1·9	4	3,772	7	1·9	5	23,566	25	1·1	11	17,553	71	4·0	8	25,379	31	1·2	157	311,044	804	2·5
August	3	4,262	7	1·6	...	...	...	...	5	21,289	7	0·3	2	2,597	2	0·8	5	11,062	18	1·6	115	243,416	490	2·0
September	...	...	...	...	...	...	...	...	...	...	..	...	1	455	1	2·2	4	6,733	15	2·2	33	113,132	159	1·4
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	807	14	17·3	6	38,614	21	0·5
November	...	...	...	...	...	...	...	...	...	...	...	...	3	4,455	3	0·7	...	...	...	...	5	36,321	7	0·2
December	1	4,814	12	2·5	...	...	...	...	...	...	...	...	1	420	1	2·4	...	...	...	...	14	76,658	107	1·3
Total ...	45	52,245	273	5·2	25	36,113	251	6·9	55	78,758	465	5·9	129	104,454	650	6·2	51	62,326	377	6·0	636	837,923	4,456	5·8

Digitized by Google

59. In this district the total registered cholera mortality was 9,548. Cholera prevailed all through the year, but was generally epidemic from May until November, when the number of deaths declined. Every registration circle shows deaths from cholera; but the epidemic was most severe in Ramachandrapuram, Narsapur, and Tanuku, and the fewest deaths were registered in Ellore and Peddapur.

Godavari.

The municipal town of Ellore registered 171 deaths, while the remaining portion of the taluk had only 236. The Godavari District suffered not only from cholera, but small-pox was unusually prevalent. The poorer members of the population of this district became distressed in 1878, and the cholera mortality was no doubt influenced by the distress.

The municipal town of Cocanada—population 17,509—lost 180 from cholera.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Godavari District during each Month of the Year 1878.

Taluks	Ramachandrapuram.				Amalapuram.				Narsapur.				Bhimavaram.			
Population	203,578.				206,885.				177,788.				92,457.			
Total No. of Villages in each Circle.	164.				172.				139.				148.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	14	23,951	62	2·5	4	8,136	8	0·9	7	12,064	39	3·2	...	...	...	...
February	3	2,000	13	6·5	2	1,560	3	1·8	2	3,258	2	0·6	1	2,099	10	4·7
March	1	2,020	8	3·9	1	616	2	3·2	1	465	7	15·0	...	...	...	...
April	2	4,041	4	0·9	...	...	...	...	...	...	...	...	1	689	3	4·3
May	1	453	1	2·2	6	11,269	26	2·3	...	...	...	...	2	2,279	3	1·3
June	5	6,091	21	3·4	16	23,035	105	4·5	22	39,118	64	1·6	7	5,550	66	11·8
July	40	69,701	226	3·2	36	19,670	195	9·9	61	99,985	368	3·6	69	43,659	546	12·5
August	54	65,247	410	6·2	26	24,905	198	9·9	50	36,472	271	7·4	40	39,476	287	7·3
September	37	59,457	292	4·8	19	34,000	84	2·4	37	53,387	218	4·0	20	21,259	93	4·3
October	12	17,244	85	4·9	12	22,355	76	3·4	17	21,395	119	5·5	12	13,320	62	4·6
November	7	18,339	81	2·3	8	12,880	43	3·5	11	27,065	45	1·6	8	10,171	46	4·5
December	5	5,079	10	1·9	9	25,051	31	1·2	14	23,142	116	5·0	5	8,804	43	4·8
Total ...	97	145,284	1,163	8·0	81	1,05,312	802	7·6	107	140,361	1,218	8·6	95	69,096	1,159	16·7

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Godavari District during each Month of the Year 1878—(Continued).

Taluks	Tanaku.				Ellore.			
Population	167,465.				111,382.			
Total No. of Villages in each Circle.	180.				247.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	5	7,815	28	3·5	6	8,527	18	2·1
February	3	3,654	20	5·4	...	...	...	...
March	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...
May	2	1,094	6	5·4	6	9,617	30	3·1
June	20	30,325	82	2·7	13	13,757	52	3·7
July	91	109,782	613	5·5	7	5,489	24	4·3
August	40	46,339	142	3·0	6	4,533	13	2·8
September	20	38,456	110	2·8	8	8,801	30	3·4
October	17	20,630	77	3·7	1	369	2	5·4
November	12	20,771	50	2·4	6	6,645	25	3·7
December	15	29,264	67	2·2	11	8,752	42	4·8
Total ...	120	135,171	1,195	8·8	41	38,483	236	6·1

Taluks	M. T. Ellore.				Yernagudem.			
Population	25,433.				145,714.			
Total No. of Villages in each Circle.	1.				214.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	1	25,433	19	0·7	3	2,433	11	4·5
February	...	...	...	...	3	1,296	7	5·3
March	...	...	...	...	...	...	...	...
April	...	...	...	...	1	52	4	76·9
May	1	25,433	2	0·07	10	17,091	29	1·6
June	...	...	...	...	19	26,100	134	5·1
July	...	...	...	...	32	25,576	181	7·0
August	1	25,433	14	0·5	37	42,954	249	5·7
September	1	25,433	45	1·7	27	32,769	100	3·4
October	1	25,433	19	0·7	8	7,728	48	6·2
November	1	25,433	1	0·03	2	2,205	3	1·3
December	1	25,433	71	2·7	5	5,226	8	1·5
Total ...	1	25,433	171	6·7	89	43,879	774	17·6

Taluks	Rajahmundry.				M. T. Rajahmundry.			
Population	109,041.				19,622.			
Total No. of Villages in each Circle.	392.				1.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	3	1,275	21	16·4	...	...	...	...
February	1	222	2	9·0	...	...	...	...
March	...	...	...	...	...	...	...	...
April	4	10,867	40	3·6	...	...	...	...
May	13	19,392	80	4·1	...	...	...	...
June	18	18,065	104	5·7	1	19,622	13	0·6
July	15	36,041	92	2·5	1	19,622	31	1·5
August	19	13,569	123	9·0	1	19,622	11	0·5
September	30	31,458	182	5·7	1	19,622	4	0·2
October	9	10,987	42	3·8	...	...	...	...
November	6	12,277	22	1·7	1	19,622	1	0·05
December	3	7,569	13	1 7	1	19,622	28	1·4
Total ...	67	81,073	721	8·8	1	19,622	88	4·4

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Godavari District during each Month of the Year 1878—(Continued).

Taluks	Peddapur.				Bhadrachalam.				M. T. Cocanada.				Zemindaries.				Total.			
Population	111,487.				27,695.				17,509.				176,047.				1,592,103.			
Total No. of Villages in each Circle	212.				......				1.				257.				2,128.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	2	238	4	16·8	...	...	...	...	1	17,509	10	0·5	4	10,215	10	0·9	50	117,596	230	1·9
February	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	...	16	14,089	61	4·3
March	...	...	...	...	...	...	...	...	...	...	...	...	1	6,447	3	0·4	4	9,548	20	2·0
April	4	6,007	26	4·3	...	...	...	...	...	...	...	...	2	9,374	21	2·1	14	31,030	98	3·1
May	1	1,052	1	0·9	...	...	...	...	1	17,509	1	0·05	8	10,487	50	4·7	51	115,676	229	1·9
June	3	3,645	11	3·0	...	...	...	...	1	17,509	26	1·4	8	20,582	46	2·2	133	223,399	724	3·2
July	8	10,444	26	2·4	5	...	12	...	1	17,509	21	1·2	40	76,725	281	3·6	406	534,203	2,616	4·8
August	15	29,800	132	4·4	...	...	...	...	1	17,509	35	1·9	63	58,423	463	7·9	353	424,282	2,348	5·5
September	35	47,821	258	5·3	...	...	...	...	1	17,509	16	0·9	36	48,785	197	4·0	272	438,217	1,629	3·7
October	15	28,356	87	3·0	...	...	...	...	1	17,509	4	0·2	15	8,914	60	6·7	120	194,240	681	3·5
November	6	19,203	25	1·3	...	...	...	...	1	17,509	61	3·4	13	23,255	53	2·1	82	210,375	406	1·9
December	2	13,054	35	2·6	...	...	...	...	1	17,509	6	0·3	7	13,970	36	2·5	79	202,475	506	2·4
Total ...	51	67,991	605	8·9	5	...	12	...	1	17,509	180	10·2	117	146,985	1,224	8·3	873	1,036,199	9,548	9·2

Kistna.

60. The number of registered cholera deaths was 6,231. The disease prevailed more or less all through the year, but mainly from July to the end of 1878. It is noticeable that the municipal town of Masulipatam (population 36,015) had 252 cholera deaths, while Guntoor (population 17,984) does not return a single casualty. This town in fact all through the epidemic has had no cholera. I cannot, from a knowledge of its sanitary condition, explain why the town has been exempt, especially as the taluk was affected in July.

Out of 2,141 villages cholera deaths were returned from 634.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Kistna District during each Month of the Year 1878.

Taluks	Repalle.				Bapatla.				Guntoor.				M. T. Guntoor.				Palnad.			
Population	169,910.				143,615.				108,964.				17,984.				120,652.			
Total No. of Villages in each Circle.	173.				105.				144.				1.				156.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	17	23,764	85	3·5	16	41,009	104	2·5	...	...	...	...	...	...	...	...	4	5,873	37	6·2
February	7	9,107	31	3·4	3	5,494	6	1·0	1	765	1	1·3	...	...	...	...	...	...	...	...
March	1	1,996	13	6·5	1	276	1	3·6	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	5	12,758	11	0·8	1	1,438	1	0·6	1	729	1	1·3	...	...	...	...	...	...	...	...
August	24	35,980	145	4·0	4	9,863	11	1·1	14	19,964	99	4·9	...	...	...	...	27	39,703	247	6·2
September	28	46,197	245	5·3	6	17,322	20	1·1	20	29,554	74	2·5	...	...	...	...	31	49,816	322	6·5
October	15	22,777	121	5·3	2	1,143	5	4·3	2	1,305	6	4·5	...	...	...	...	7	10,984	29	2·6
November	19	26,922	73	2·7	7	17,438	47	2·6	6	4,784	28	5·8	...	...	...	...	1	1,010	3	0·9
December	36	52,865	289	5·4	9	31,546	130	4·1	6	6,773	28	4·1	...	...	...	...	...	...	...	...
Total ...	88	117,096	1,013	8·6	29	64,603	325	5·0	35	48,492	237	4·8	...	...	...	...	46	66,736	638	9·5

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Kistna District during each Month of the Year 1878—(Continued).

Taluks	Narsaraopet.				Gudivada.				Sattanapalle.				Masulipatam.				M. T. Masulipatam.			
Population	120,617.				87,138.				101,727.				128,333.				36,015.			
Total No. of Villages in each Circle.	160.				246.				190.				198.				1.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	2	942	2	2·1	13	14,232	103	7·2	7	3,974	66	16·6	10	12,165	42	3·4	1	36,015	4	0·1
February	1	523	2	3·8	2	2,557	8	3·0	3	1,256	20	15·9	3	2,364	6	2·5	...	...	...	...
March	1	785	1	1·2	...	...	...	...	1	268	9	3·5	...	...	...	...	1	36,015	2	0·05
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	1	641	2	3·1	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	26	20,092	251	12·4	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	45	32,401	183	5·6	1	1,272	1	0·7	14	11,617	60	5·1	...	...	...	...
August	10	15,931	45	2·8	30	24,683	164	6·6	12	11,958	88	7·3	28	25,407	128	5·3	1	36,015	35	0·9
September	17	19,555	71	3·6	41	27,062	202	7·4	28	21,768	186	8·5	28	29,482	148	5·0	1	36,015	81	2·2
October	...	...	...	...	15	8,855	69	7·7	5	2,642	21	7·9	21	27,963	100	3·5	1	36,015	73	2·0
November	2	886	2	2·3	4	4,340	30	6·9	...	...	...	...	16	22,931	72	3·1	1	36,015	34	0·9
December	...	...	...	...	3	4,387	14	3·1	...	...	...	...	17	21,937	73	3·3	1	36,015	23	0·6
Total ...	24	25,446	123	4·8	104	66,907	1,026	15·3	40	32,257	391	12·1	79	79,052	629	7·9	1	36,015	252	6·9

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Kistna District during each Month of the Year 1878—(Continued).

Taluks	Nandigama.				Bezwada.				Vinukonda.				Zemindaries.				Total.			
Population	106,448.				83,035.				64,508.				163,125.				1,452,066.			
Total No. of Villages in each Circle.	182.				129.				119.				337.				2,141.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	3	2,336	8	3·4	8	27,654	26	0·9	...	...	...	...	15	8,083	45	5·5	96	176,047	522	2·9
February	1	144	1	6·9	1	8,026	1	0·1	...	...	...	...	2	3,238	4	1·2	24	33,474	80	2·3
March	3	2,067	12	5·7	1	4,527	1	0·2	...	...	...	...	3	6,706	13	2·0	12	52,660	52	0·9
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	641	2	3·1
June	...	...	...	...	1	1,655	12	7·2	...	...	...	...	5	2,882	7	2·4	32	24,629	270	10·9
July	1	991	1	1·0	14	21,892	72	3·2	...	...	...	...	24	23,866	130	5·4	106	106,964	460	4·3
August	12	19,379	100	5·1	23	28,923	145	5·0	8	5,449	43	7·8	26	27,138	139	5·1	219	300,393	1,389	4·6
September	14	21,468	62	2·8	17	35,122	111	3·1	21	21,362	140	6·5	33	32,213	212	6·5	280	386,436	1,874	4·8
October	...	...	...	...	3	13,691	7	0·5	4	7,500	22	2·9	19	15,947	52	3·2	94	148,822	505	3·3
November	...	...	...	...	1	4,527	1	0·2	2	5,765	18	3·1	7	8,297	38	4·5	66	132,865	346	2·6
December	1	271	2	7·3	12	27,687	74	2·6	...	...	...	...	20	13,950	98	7·2	105	195,431	731	3·7
Total ...	28	23,583	186	7·9	43	62,119	450	7·2	26	24,355	223	9·1	91	68,476	738	10·7	634	715,187	6,231	8·7

Digitized by Google

61. The total deaths registered in this district was 314; they were scattered over the various circles, and most of them occurred in January and February, or in August, September and October.

Nellore.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Nellore District during each Month of the Year 1878.

Taluks	Gudur.				Rapur.				Nellore.				M. T. Nellore.				Atmakur.				Kavali.			
Population ...	147,116.				63,885.				149,846.				29,698.				103,802.				81,336.			
Total No. of Villages in each Circle.	211.				158.				174.				1.				148.				93.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	2	6,425	37	5·7	1	1,287	5	4·0	3	4,018	6	1·4	...	...	...	...	3	896	11	2·2	2	5,496	3	0·5
February ...	1	1,324	10	7·5	...	...	...	...	1	810	5	6·1	...	...	...	...	...	...	...	...	1	1,117	4	3·5
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	1	29,698	1	0·03	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	5,127	4	0·7	...	...	...	...
September ...	...	...	...	...	...	...	...	...	1	750	6	8·0	...	...	...	...	5	7,090	15	2·1	...	...	...	...
October	...	...	...	...	...	...	...	...	1	3,075	4	1·3	...	...	...	...	1	649	1	1·5	...	...	...	...
November ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	2	6,425	47	7·3	1	1,287	5	4·0	5	6,581	21	3·1	1	29,698	1	0·03	11	11,256	31	2·7	3	6,613	7	1·0

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Nellore District during each Month of the Year 1878—(Continued).

Taluks	Udayagiri.				Kandukur.				Kanygiri.				Ongole.				M. T. Ongole.				Zemindaries.				Total.			
Population ...	100,962.				138,375.				127,258.				187,678.				7,388.				239,139.				1,376,433.			
Total No. of Villages in each Circle.	164.				232.				254.				197.				1.				551.				2,184.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	1	1,222	1	0·8	...	...	...	...	3	2,573	6	2·3	...	...	...	...	1	7,524	5	0·6	15	39,385	74	1·8
February ...	1	2,202	1	0·4	1	575	1	1·7	...	...	...	...	2	2,076	5	2·4	...	...	...	...	1	768	11	14·3	8	8,872	37	4·1
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	398	5	12·5	2	398	5	12·5
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	29,698	1	0·03
August	1	880	33	39·3	...	...	...	...	...	...	...	...	1	1,696	2	1·1	...	...	...	...	6	3,300	15	4·5	12	10,961	54	4·9
September ...	3	2,329	5	2·7	4	10,356	24	2·3	1	262	5	19·0	2	2,529	10	3·9	...	...	...	...	8	9,160	51	5·5	24	32,476	116	3·5
October	...	...	...	...	...	...	...	...	1	667	21	31·4	1	751	1	1·3	...	...	...	...	...	...	...	...	4	5,142	27	5·2
November ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	6	5,714	39	6·8	5	4,578	26	5·7	2	929	26	27·9	8	8,734	25	2·8	...	...	...	...	13	18,290	87	4·7	57	100,055	314	3·1

Chingleput.

62. This district returns only 85 cholera deaths; of these 23 occurred in the beginning of the year, and 61 in November and December. The latter deaths are coincident in time with a limited outbreak that occurred in the town of Madras, and which will presently be noticed. No deaths were noted in Conjeveram Taluk or Ponneri.

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Chingleput District during each Month of the Year 1878.

Taluks	Saidapet.				Chingleput.			
Population	183,008.				132,271.			
Total No. of Villages in each Circle.	335.				440.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	1	15,480	1	0·06	...	...	...	...
February	2	15,835	6	0·3	...	...	...	...
March	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...
November	1	401	5	12·4	2	668	19	28·2
December	1	346	5	14·4	1	3,374	1	0·2
Total ...	4	16,582	17	1·0	3	4,042	20	4·9

Taluks	Madhurantakam.				Conjeveram.			
Population	197,308.				130,695.			
Total No. of Villages in each Circle.	563.				460.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	2	1,968	7	3·5	...	...	...	...
February	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...
November	5	3,169	27	8·5	...	...	...	...
December	1	794	4	5·1	...	...	...	...
Total ...	6	4,817	38	7·8	...	...	...	...

Taluks	M. T. Conjeveram.				Tiruvalur.			
Population	37,317.				149,774.			
Total No. of Villages in each Circle.	1.				339.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	2	4,520	9	1·9
February	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...
May	1	37,317	1	0·02	...	...	...	...
June	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...
Total ...	1	37,317	1	0·02	2	4,520	9	1·8

Taluks	Ponneri.				Total.			
Population	104,155.				934,528.			
Total No. of Villages in each Circle.	256.				2,394.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	5	21,988	17	0·7
February	...	...	...	...	2	15,835	6	0·3
March	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...
May	...	...	...	...	1	37,317	1	0·02
June	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...
November	...	...	...	...	8	4,238	51	12·0
December	...	...	...	...	3	4,514	10	2·2
Total ...	...	...	...	...	16	67,278	85	1·2

Digitized by Google

Madras.

63. There were only 64 deaths from cholera in the town of Madras during the year. In November there was a local outbreak in connection chiefly with the East Indian residents of Black Town, and from enquiries instituted at the time it appeared that the families in which cases occurred were in the habit of buying their water from men who professed to get it from the Seven Wells. The first cases amongst the East Indian community occurred in the pupils of a day school, the school being supplied with water by a carrier from the dubious source. The exact well used in these cases could not be clearly made out. For some days in November the attacks were confined to the parties who purchased water from the carts and who did not drink the ordinary town supply from the pipes, but later in the month cases occurred amongst Natives who used the ordinary town-supply.

Thirty-one cholera deaths occurred in November, and of these 11 were East Indians and 1 European.

Table showing particulars of Cholera Deaths in the different Divisions of Madras (Town) District during each Month of the Year 1878.

Divisions	1st Division.				2nd Division.				3rd Division.				4th Division.			
Population	65,547.				......				......				......			
Total No. of Villages in each Circle.	5.				3.				3.				3.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	2	68,559	5	0·07	...	...	...	...	...	...	...	...
February	1	35,240	1	0·02	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	2	68,559	2	0·03	...	...	...	...	1	5,650	1	0·1
April	...	...	...	...	...	...	...	...	1	32,062	1	0·03	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	1	6,409	2	0·3	...	...	...	...	1	32,062	1	0·03	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	1	32,062	3	0·09	...	...	...	...
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October	...	...	...	...	2	68,559	4	0·05	...	...	...	...	1	5,650	1	0·1
November	3	19,818	5	0·2	2	68,659	4	0·06	1	32,062	3	0·09	1	3,500	1	0·2
December	...	...	...	...	2	68,559	3	0·04	...	...	...	...	...	...	...	...
Total ...	4	54,458	8	0·1	2	68,559	18	0·2	1	32,062	8	0·2	2	9,150	3	0·3

Digitized by Google

Table showing particulars of Cholera Deaths in the different Divisions of Madras (Town) District during each Month of the Year 1878—(Continued).

Divisions	5th Division.				6th Division.				7th Division.				8th Division.				Total.			
Population	......				......				......				......				381,926.			
Total No. of Villages in each Circle.	8.				4.				5.				6.				37.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	3	38,506	4	0·1	...	...	...	...	...	...	...	...	2	25,830	2	0·07	7	132,895	11	0·08
February	...	...	...	...	...	...	...	...	1	12,057	1	0·07	3	31,023	6	0·1	5	78,320	8	0·1
March	1	19,006	1	0·05	...	...	...	...	...	...	...	...	1	20,575	1	0·04	5	113,790	5	0·04
April	...	...	...	...	...	...	...	...	1	33,258	1	0·03	...	...	...	...	2	65,320	2	0·03
May	...	...	...	...	...	...	...	...	1	33,258	1	0·03	...	...	...	...	1	32,258	1	0·03
June	1	19,006	1	0·05	...	...	...	...	...	...	...	...	...	...	...	...	3	57,477	4	0·06
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	32,062	3	0·09
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October	1	15,000	1	0·06	...	...	...	...	...	...	...	...	...	...	...	...	4	89,209	6	0·06
November	2	30,281	3	0·09	...	...	...	...	1	33,258	1	0·03	1	20,575	2	0·09	11	207,453	19	0·09
December	1	19,006	1	0·05	...	...	...	...	...	...	...	...	1	5,255	1	0·1	4	92,820	5	0·05
Total ...	4	49,781	11	0·2	...	...	...	...	2	43,315	4	0·08	3	31,023	12	0·3	18	290,348	64	0·2

Digitized by Google

64. The total cholera deaths in this district was 2,096. Cholera was prevailing in January in all the registration circles. It declined as the hot season came on, but increased somewhat in July and August. In December the deaths were only 31, occurring in but two of the ten registration circles. The epidemic was practically extinct in this district at the end of the year.

South Arcot.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the South Arcot District during each Month of the Year 1878.

Taluks	Cuddalore.				M. T. Cuddalore.				Villupuram.				Chilambaram.				M. T. Chilambaram.			
Population	244,537.				39,940.				236,092.				223,605.				15,518.			
Total No. of Villages in each Circle.	257.				1.				328.				492.				1.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	35	62,248	132	2·1	1	39,940	39	0·9	27	34,535	87	2·5	23	29,331	69	2·3	1	15,518	6	0·3
February	9	12,253	23	1·8	1	39,940	2	0·05	10	19,602	23	1·1	14	26,245	49	1·8	1	15,518	4	0·2
March	2	3,947	8	2·0	...	...	...	...	1	1,078	1	0·9	12	13,788	30	2·1	1	15,518	1	0·06
April	1	1,067	8	7·5	...	...	...	...	2	2,634	2	0·7	10	4,529	67	14·7	1	15,518	2	0·1
May	1	3,792	1	0·2	...	...	...	...	...	...	...	...	9	4,681	33	7·0	...	...	...	...
June	1	276	1	3·6	...	...	...	...	...	...	...	...	14	13,528	54	3·9	...	...	...	..
July	8	10,237	50	4·8	...	...	...	...	1	1,818	9	4·9	62	57,390	401	6·9	1	15,518	1	0·06
August	9	15,361	85	5·5	1	39,940	2	0·05	9	7,273	23	3·1	59	54,360	278	5·1	1	15,518	13	0·8
September	9	9,356	12	1·2	1	39,940	3	0·07	4	4,096	5	1·2	24	25,443	88	3·4	1	15,518	5	0·3
October	...	...	...	...	1	39,940	2	0·05	...	...	...	...	5	3,553	16	4·5	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	5	3,260	19	5·8	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	6	3,242	26	8·0	...	...	...	...
Total ...	60	94,104	320	3·4	1	39,940	48	1·2	42	55,152	150	2·7	157	112,946	1,130	10·0	1	15,518	32	2·0

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the South Arcot District during each Month of the Year 1878—(Continued).

Taluks	Tindivanam.				Kallakurchi.				Tirukoilur.				Trinomalai.				Virudachalam.				Total.			
Population ...	239,688.				196,560.				216,238.				164,643.				178,508.				1,755,324.			
Total No. of Villages in each Circle.	547.				313.				383.				492.				305.				2,118.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	16	8,061	43	5·3	12	10,547	54	5·1	20	21,656	53	2·4	1	339	8	23·6	12	14,695	23	1·5	148	236,870	514	2·1
February	3	1,364	19	13·9	6	6,983	27	3·8	2	2,768	6	2·1	2	1,208	5	4·1	5	2,830	24	8·4	53	128,661	182	1·4
March	...	...	...	...	1	2,749	8	2·9	4	4,875	6	1·3	...	...	...	...	4	3,233	5	1·5	25	44,663	59	1·3
April	1	686	1	1·4	1	2,789	7	2·5	1	1,487	1	0·6	...	...	...	...	1	630	1	1·5	18	29,290	89	3·0
May	...	...	...	...	2	4,054	7	1·7	...	...	...	...	...	...	...	...	3	1,674	3	1·8	15	14,201	44	3·0
June	...	...	...	...	1	2,789	3	1·0	...	...	...	...	...	...	...	...	2	619	2	3·2	18	17,212	60	3·4
July	...	...	...	...	1	2,789	9	3·2	...	...	...	...	...	...	...	...	1	1,184	1	0·8	74	88,936	471	5·3
August	9	6,071	46	7·5	1	2,749	12	4·3	2	3,465	5	1·4	...	...	...	..	1	1,184	1	0·8	92	145,921	465	3·1
September ...	5	3,705	13	3·5	2	3,071	10	3·2	1	1,010	1	0·9	...	...	...	...	...	...	...	...	47	102,139	137	1·3
October	1	352	1	2·8	1	2,789	4	1·4	...	...	...	...	...	...	...	...	...	...	...	..	8	46,634	23	0·4
November ...	1	963	1	1·0	...	...	...	...	1	1,947	1	0·5	...	...	...	...	...	...	...	...	7	6,190	21	3·3
December ...	1	1,591	5	3·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	4,833	31	6·4
Total ...	39	17,530	129	7·3	17	15,265	141	9·2	29	33,890	73	2·1	3	1,546	13	8·4	28	23,883	60	2·5	365	409,764	2,096	5·1

Digitized by Google

65. The total deaths in this district was 484; of these 348 were registered in January, and there was no revival of the epidemic in the cold season of November and December.

Trichinopoly.

The December deaths were only 2; the deaths mainly occurred in the Trichinopoly Taluk and the two municipal towns of Trichinopoly and Srirangam.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Trichinopoly District during each Month of the Year 1878.

Taluks	Trichinopoly.				M. T. Trichinopoly.				M. T. Srirangam.				Musiri.				Kulitalai.			
Population	211,259.				75,306.				18,655.				257,173.				228,306.			
Total No. of Villages in each Circle.	452.				1.				1.				234.				249.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	50	42,842	135	3·1	1	75,304	123	1·6	1	18,655	9	0·4	9	21,942	15	0·7	10	20,287	26	1·3
February	15	13,362	23	1·7	1	75,304	5	0·06	1	18,655	9	0·4	2	1,918	2	1·0	...	...	...	...
March	5	3,651	5	1·3	...	...	...	...	1	18,655	4	0·2	1	1,342	1	0·7	...	...	...	...
April	3	5,505	3	0·5	...	...	...	...	1	18,655	2	0·1	...	...	...	...	...	...	...	...
May	1	1,092	1	0·9	...	...	...	...	1	18,655	2	0·1	...	...	..	...	...	...	...	...
June	1	1,092	1	0·9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	1	762	1	1·3	...	...	...	...	...	...	...	...	1	1,599	2	1·2	...	...	...	...
August	1	477	1	2·0	...	...	...	...	1	18,655	1	0·05	1	254	5	19·2	...	...	...	...
September	7	3,518	11	3·1	1	75,304	2	0·02	...	...	...	...	1	254	3	11·8	5	7,779	10	1·2
October	1	464	1	2·1	1	75,304	1	0·01	...	...	...	...	...	...	...	...	...	...	...	...
November	2	664	2	3·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	1	1,546	1	0·6	...	...	...	...	...	...	...	...	...	...	...	...	1	2,724	1	0·3
Total ...	72	60,559	185	3·0	1	75,304	131	1·7	1	18,655	27	1·4	12	24,204	28	1·1	14	23,414	37	1·5

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Trichinopoly District during each Month of the Year 1878—(Continued).

Taluks	Perambalur.				Udiarpolliem.				Zemindaries.				Total.			
Population	170,563.				237,893.				...				1,199,155.			
Total No. of Villages in each Circle.	248.				489.				...				1,674.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	5	13,520	25	1·8	5	5,718	8	1·4	...	...	7	...	81	198,368	246	1·7
February	4	6,864	10	1·4	2	615	15	24·4	...	...	1	...	25	116,718	66	0·5
March	...	...	...	...	2	4,089	2	0·4	...	...	...	...	9	27,787	12	0·4
April	1	1,242	1	0·8	1	1,488	1	0·6	...	...	...	...	6	28,240	7	0·2
May	...	...	...	...	...	...	...	...	1	109	1	9·1	3	19,856	4	0·2
June	1	1,437	1	0·6	...	...	...	...	...	...	...	...	3	2,539	2	0·7
July	...	...	...	...	...	...	...	...	...	...	...	...	2	2,361	3	1·3
August	1	1,877	1	0·5	1	370	2	5·4	...	...	...	...	5	21,683	10	0·4
September	...	...	...	...	...	...	...	...	...	...	...	...	14	86,355	26	0·3
October	...	...	...	...	1	87	1	11·4	...	...	...	...	3	75,355	3	0·04
November	...	...	...	...	...	...	...	...	...	...	...	...	2	664	2	3·0
December	...	...	...	...	...	...	...	...	...	...	...	...	2	4,270	2	0·4
Total ...	10	20,883	30	1·4	12	11,592	29	2·5	1	109	9	...	123	284,720	484	2·6

66. Cholera was prevailing in January 1878. It died out almost completely in June, but revived again in July, reached its maximum of prevalence in August, and was not extending much at the end of the year.

Tanjore.

The total cholera mortality of the year was 2,744. No circle was absolutely free. The heaviest relative mortality occurred in the municipal towns of Combaconum and Negapatam, and any one acquainted with their sanitary condition will hardly be surprised. In the town of Tanjore, on the other hand, the rate of cholera mortality was less than in the adjoining taluks.

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Tanjore District during each Month of the Year 1878.

Taluks	Tanjore.				M. T. Tanjore.				Combaconum.				M. T. Combaconum.				Mayavaram.			
Population	292,114.				52,014.				296,587.				44,395.				198,048.			
Total No. of Villages in each Circle.	505.				1.				549.				1.				350.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	26	47,627	85	1·7	1	52,014	5	0·09	41	43,821	207	4·7	1	44,395	34	0·7	17	24,987	73	2·9
February	10	5,645	30	5·3	...	...	...	...	23	32,562	67	2·0	1	44,395	22	0·5	9	7,760	12	1·5
March	2	787	3	4·0	...	...	...	...	3	3,011	22	7·3	1	44,395	1	0·02	3	3,615	14	3·8
April	5	7,087	24	3·3	1	52,014	1	0·02	1	1,044	6	5·7	...	...	...	...	2	957	5	5·2
May	1	3,026	2	6·6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	1	52,014	1	0·02	1	1,872	1	0·5	...	...	...	...	...	...	...	...
July	3	3,671	4	1·0	1	52,014	1	0·02	...	...	...	...	...	...	...	...	14	11,777	103	8·7
August	2	2,410	2	0·8	1	52,014	1	0·02	27	26,022	63	2·4	1	44,395	64	1·4	45	31,090	185	5·9
September	4	2,607	4	1·5	1	52,014	1	0·02	33	38,814	75	1·9	1	44,395	20	0·4	38	39,805	96	2·4
October	1	940	4	4·2	...	...	...	...	5	11,062	8	0·7	...	...	...	...	19	14,942	66	4·4
November	...	...	...	...	...	...	...	...	1	110	1	9·0	...	...	...	...	5	2,871	16	5·5
December	...	...	...	...	1	52,014	1	0·02	1	858	1	1·1	...	...	...	...	4	2,581	8	3·0
Total ...	44	61,767	158	2·5	1	52,014	11	0·2	94	91,658	451	4·9	1	44,395	141	3·1	109	83,928	578	6·8

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Tanjore District during each Month of the Year 1878—(Continued).

Taluks	M. T. Mayavaram.				Sheally.				Nannilam.				Negapatam.				M. T. Negapatam.			
Population	21,160.				107,458.				207,405.				152,201.				48,075.			
Total No. of Villages in each Circle.	1.				210.				422.				345.				1.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	1	21,160	20	0·9	3	1,925	9	4·6	25	25,963	103	3·9	7	13,152	17	1·2	1	48,075	20	0·4
February	1	21,160	8	0·3	5	2,477	13	5·2	12	12,871	30	2·3	3	979	9	9·1	1	48,075	8	0·1
March	...	...	...	...	...	...	...	...	6	3,554	8	2·2	2	2,049	2	0·1	...	...	...	...
April	...	...	...	...	...	...	...	...	1	298	1	3·3	...	...	...	...	...	...	...	...
May	...	...	...	..	...	...	...	...	...	...	...	...	1	480	8	16·7	...	...	...	...
June	...	...	...	...	...	...	...	...	..	...	...	...	1	366	1	2·7	...	...	...	...
July	1	21,160	1	0·04	21	18,881	82	4·3	1	569	3	5·2	1	2,735	1	0·3	1	48,075	1	0·02
August	1	21,160	10	0·4	50	40,877	293	7·1	12	8,724	72	8·2	9	7,685	39	5·0	1	48,075	10	0·2
September	1	21,160	9	0·4	24	14,118	62	4·3	18	14,089	38	2·7	5	6,712	20	2·9	1	48,075	9	0·1
October	1	21,160	4	0·1	6	4,678	18	3·8	3	3,103	9	2·9	3	1,206	6	4·9	1	48,075	4	0·08
November	...	...	...	...	4	1,787	12	6·7	...	...	...	...	...	...	...	...	...	...	...	...
December	1	21,160	1	0·04	3	1,730	10	5·7	2	2,645	1	0·3	4	12,021	4	0·3	1	48,075	1	0·02
Total ...	1	21,160	53	2·5	87	60,537	429	7·1	66	50,481	265	5·2	26	27,672	107	3·8	1	48,075	53	1·1

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Tanjore District during each Month of the Year 1878—(Continued).

Taluks	Mannargudi.				M. T. Mannargudi.				Tiruturaipundi.				Pattukotai.				Total.			
Population	143,561.				17,682.				154,714.				237,406.				1,972,820.			
Total No. of Villages in each Circle.	33.				1.				246.				1,004.				3,967.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	16	11,925	52	4·3	1	17,682	14	0·7	4	2,512	6	2·3	10	8,379	35	4·1	154	363,117	671	1·8
February	7	5,545	17	3·0	1	17,682	21	1·1	4	2,726	5	1·8	1	1,222	2	1·6	78	203,099	257	1·2
March	2	1,798	2	1·1	1	17,682	2	0·1	1	272	1	3·6	1	707	2	2·8	22	77,820	71	0·9
April	1	318	1	3·1	1	17,682	1	0·05	2	2,024	16	7·9	1	707	1	1·4	15	82,126	56	0·6
May	...	...	...	...	...	...	...	...	...	...	...	...	2	4,948	2	0·4	4	8,454	13	1·5
June	...	...	...	...	1	17,682	1	0·05	4	3,026	4	1·3	1	265	1	3·7	9	75,225	9	0·1
July	...	...	...	...	1	17,682	1	0·05	3	1,343	6	4·4	2	4,846	4	0·8	49	182,753	218	1·1
August	...	...	...	...	...	...	..	...	5	3,014	7	2·3	2	995	3	3·0	156	286,461	805	2·8
September	4	1,178	32	27·2	1	17,682	1	0·05	3	1,278	7	5·4	2	2,079	6	2·8	136	303,946	402	1·3
October	...	...	...	...	...	...	...	...	2	607	8	13·1	1	736	4	5·4	42	106,529	134	1·2
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	4,768	34	7·1
December	4	2,592	11	4·2	...	...	...	...	10	8,058	31	3·8	...	...	...	...	31	151,734	74	0·4
Total ...	30	20,522	115	5·5	1	17,682	41	2·3	33	21,663	91	4·2	21	22,725	60	2·6	515	624,279	2,744	4·4

Digitized by Google

67. The total deaths registered in the whole district was 275, and of these no fewer than 63 are given for the town of Madura alone. The epidemic was dying out in the beginning of the year. In June, July and August the whole district was apparently quite free of cholera, but in September, October and November 128 deaths were registered in a few circles. In this district the epidemic was extinct by the end of the year 1878.

Madura.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Madura District during each Month of the Year 1878.

Taluks	Madura.				M. T. Madura.				Melur.				Tirumangalam.			
Population	179,423.				51,806.				138,979.				241,309.			
Total No. of Villages in each Circle.	439.				1.				94.				259.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	3	3,396	3	0·8	1	51,806	21	0·4	4	12,073	20	1·6	6	5,869	10	1·7
February	1	1,286	2	1·6	1	51,806	31	0·5	2	4,096	5	1·2	2	2,278	2	0·8
March	1	263	1	3·8	1	51,806	5	0·09	...	...	...	...	2	1,420	2	1·4
April	...	...	...	...	...	...	...	...	...	...	...	...	3	4,796	7	1·4
May	...	...	...	...	...	...	...	...	...	...	...	...	1	563	2	3·5
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	1	51,806	5	0·09	...	...	...	...	6	10,668	53	4·9
October	2	1,369	9	6·4	1	51,806	1	0·01	1	652	1	1·5	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	1	4,057	30	7·4
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	6	3,659	15	4·09	1	51,806	63	1·2	6	12,807	26	2·03	19	29,673	106	3·5

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Madura District during each Month of the Year 1878—(Continued).

Taluks	Periyakolam.				Dindigul.				M. T. Dindigul.				Pulney.				Sittanandal Villages.				Total.			
Population	217,413.				311,493.				12,811.				184,818.				1,255.				1,329,207.			
Total No. of Villages in each Circle.	82.				217.				1.				131.				...				1,224.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	9	32,656	25	0·7	1	12,811	1	0·07	...	...	...	...	...	...	...	...	24	118,610	80	0·6
February	...	...	...	...	...	...	...	...	...	...	...	...	3	3,441	6	1·7	...	...	...	...	9	62,902	46	0·7
March	1	4,183	1	0·2	1	109	1	9·1	...	...	...	...	...	...	...	...	...	...	...	...	6	57,781	10	0·1
April	...	...	...	...	1	393	1	2·5	...	...	...	...	...	...	...	...	...	...	...	...	4	5,189	8	1·5
May	1	4,183	1	0·2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	4,746	3	0·6
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	1	3,672	27	7·3	...	...	...	...	...	...	...	...	...	...	...	...	8	66,146	85	1·2
October	...	...	...	...	1	2,123	2	0·9	...	...	...	...	...	...	...	...	...	...	...	...	5	55,950	13	0·2
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	4,057	30	7·4
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	1	4,183	2	0·4	12	36,330	56	1·5	1	12,811	1	0·07	3	3,441	6	1·7	...	...	..	...	49	155,210	275	1·7

Digitized by Google

68. Here, again, the epidemic was expiring in January and underwent no revival; out of 318 cholera deaths 271 were registered in January. The district was entirely free of cholera, with the exception of three isolated cases, for the last seven months of 1878.

Tinnevelly.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Tinnevelly District during each Month of the Year 1878.

Taluks	Ottaipidaram.				M. T. Tuticorin.				Tenkarai.				Tinnevelly.				M. T. Tinnevelly.				M. T. Palamcottah.			
Population	285,802.				10,475.				234,312.				145,107.				21,044.				17,785.			
Total No. of Villages in each Circle.	437.				1.				172.				266.				1.				1.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	7	9,832	7	0·7	...	...	...	...	30	79,759	75	0·9	11	42,528	54	1·2	1	21,044	13	0·6	1	17,785	19	1·0
February	2	4,359	2	0·4	...	...	...	...	8	11,643	11	0·9	1	1,402	1	0·7	...	...	...	...	1	17,785	1	0·05
March	1	3,710	1	0·07	...	...	...	...	...	...	...	...	...	...	...	...	1	21,044	1	0·04	...	...	...	...
April	...	...	...	...	...	...	...	...	1	1,120	1	0·8	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	1	10,475	1	0·09	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	8	13,542	10	0·7	1	10,475	1	0·09	35	85,751	90	1·04	11	43,043	55	1·2	1	21,044	14	0·6	1	17,785	20	1·1

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Tinnevelly District during each Month of the Year 1878—(Continued).

Taluks	Srivilliputtur.				Sankaranainarkoil.			
Population	176,944.				182,018.			
Total No. of Villages in each Circle.	154.				112.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	1	992	1	1·0	4	29,876	8	0·2
February	...	...	...	...	2	1,087	2	1·8
March	1	808	1	1·2	2	95,675	2	0·02
April	...	...	...	...	1	705	1	1·4
May	...	...	...	...	1	1,515	1	0·6
June	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...
Total ...	2	1,800	2	1·1	9	115,084	14	0·1

Taluks	Nanguneri.				Ambasamudram.				Satur.			
Population	178,074.				163,215.				156,855.			
Total No. of Villages in each Circle.	237.				140.				208.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	18	32,578	51	1·5	8	12,256	16	1·3	4	5,335	4	0·7
February	1	500	1	2·0	5	16,216	8	0·4	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	1	682	1	1·4
May	1	597	1	1·6	...	...	...	...	1	10,153	1	0·09
June	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	20	33,670	53	1·5	13	28,662	24	0·6	6	16,170	6	0·3

Taluks	Tenkasi.				Total.			
Population	121,998.				1,693,629.			
Total No. of Villages in each Circle.	130.				1,849.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	10	18,122	23	1·2	95	270,597	271	1·00
February	5	10,154	6	0·5	25	68,146	32	0·5
March	...	...	...	...	5	121,287	5	0·04
April	...	...	...	...	3	9,507	3	1·1
May	...	...	...	...	4	22,740	4	0·1
June	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	2	...
September	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	1	...
November	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...
Total ...	16	28,871	29	0·7	123	495,897	318	0·7

Digitized by Google

69. The total cholera deaths in this district was 1,896. The epidemic of 1877 ceased in November, and from November 1877 to April 1878 not a case occurred. On the 10th May two deaths occurred in the town of Pattikonda, Pattikonda Taluk, and up to the end of the month 192 cases occurred in this one registration circle. In June the area of the epidemic had extended to three other taluks; but the chief mortality still remained in Pattikonda. The disease began to decrease in July, and in October had died out.

Kurnool.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Kurnool District during each Month of the Year 1878.

Taluks	Ramallakota.				M. T. Kurnool.				Pattikonda.				Nandikotkur.			
Population	120,611.				25,462.				178,424.				101,963.			
Total No. of Villages in each Circle.	108.				1.				110.				101.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	11	27,409	192	7·0	...	...	...	...
June	7	10,071	39	3·8	1	25,462	119	4·6	17	42,377	330	7·7	5	11,237	80	7·1
July	6	7,009	72	10·2	1	25,462	180	7·0	1	8,586	5	0·5	3	5,558	21	3·7
August	1	2,101	35	16·6	1	25,462	6	0·2	1	8,586	17	1·9	...	...	...	...
September	1	1,214	10	8·2	1	25,462	27	1·0	...	...	...	...	...	...	...	...
October	...	...	...	...	1	25,462	18	0·7	...	...	...	...	...	...	...	...
November	...	...	...	...	1	25,462	1	0·03	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	14	17,566	156	8·8	1	25,462	351	13·7	22	49,982	544	10·8	6	12,579	101	8·0

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Kurnool District during each Month of the Year 1878—(Continued).

Taluks	Nandial.				Koilkuntla.				Sirvail.				Cumbum.				Markapur.				Total.			
Population	107,294.				98,841.				71,039.				123,034.				92,665.				914,233.			
Total No. of Villages in each Circle.	92.				86.				85.				108.				96.				787.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	1	1,451	1	0·6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12	28,860	193	6·6
June	1	9,378	3	0·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31	98,525	571	5·7
July	2	11,955	50	4·1	9	16,972	42	2·4	3	4,532	11	2·4	2	3,481	18	5·1	...	...	...	...	27	83,555	399	4·7
August	2	10,486	40	3·8	1	3,906	5	1·2	1	2,056	5	2·4	17	29,656	270	9·1	5	5,945	39	6·5	29	88,200	417	4·7
September	...	...	...	...	...	...	...	...	...	...	...	...	11	25,797	116	4·5	8	12,723	144	11·3	21	65,196	297	4·5
October	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	1	25,462	18	0·7
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	25,462	1	0·03
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	4	14,514	94	6·4	9	16,972	47	2·7	3	4,532	16	3·5	23	39,362	404	10·2	12	17,791	183	10·2	94	198,760	1,896	9·5

Digitized by Google

70. In Cuddapah the cholera epidemic of 1877 lingered on until March 1878. In April no death occurred; but in May it broke out again, chiefly in the Kadiri Taluk (adjoining the Bellary District). In June the mortality was increasing, and in this month cholera reached the Cuddapah Taluk; in July 1,579 deaths were registered; and in this month the municipal town of Cuddapah was attacked. From August the epidemic rapidly declined, and was quite extinct in November. The total cholera deaths in the district was 3,261.

Cuddapah.

It will be noticed how similar were the phases of the epidemic in these three districts of Bellary, Kurnool and Cuddapah. The history of the outbreak in the first district is clear. Cholera re-appeared, after a complete absence of seven months, at the Humphi festival.

Is it too much to infer that the causes in operation at Humphi were operative in the extension of the epidemic to Kurnool and Cuddapah?

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Cuddapah District during each Month of the Year 1878.

Taluks ...	Badvail.				Proddutur.				Sidhout.				Pullampet.				Cuddapah.				M. T. Cuddapah.				Jammulamadugu.			
Population ...	93,049.				102,732.				76,662.				145,153.				146,706.				16,184.				109,961.			
Total No. of Villages in each Circle.	119.				85.				82.				143.				165.				1.				133.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January ...	...	...	...	...	...	...	...	...	2	2,817	46	16·3	5	11,262	47	4·1	...	...	...	...	...	...	...	...	...	...	...	...
February ...	...	...	...	...	...	...	...	...	...	...	...	...	4	14,278	60	4·2	...	...	...	...	...	...	...	...	...	...	...	...
March ...	...	...	...	...	...	...	...	...	...	...	...	...	2	3,976	10	2·5	...	...	...	...	...	...	...	...	...	...	...	...
April ...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May ...	1	2,686	3	1·1	4	14,407	12	0·8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June ...	2	3,350	6	1·7	15	28,199	68	2·4	3	6,025	4	0·6	...	...	...	...	16	23,609	107	4·5	...	...	...	...	14	23,965	101	4·1
July ...	4	2,032	35	17·2	42	77,654	573	7·3	13	19,667	69	3·5	3	5,864	4	0·7	49	66,580	432	6·4	1	16,184	23	1·4	30	36,971	282	7·6
August ...	12	25,217	89	3·5	31	55,362	149	2·6	13	11,584	71	6·1	9	20,225	89	4·4	32	65,383	143	2·1	1	16,184	31	1·9	11	14,728	84	5·7
September ...	7	9,740	29	2·9	4	10,364	41	3·9	4	5,547	14	2·5	12	29,732	69	2·3	14	25,684	55	2·1	1	16,184	42	2·5	4	9,075	9	0·9
October ...	...	...	...	...	5	12,739	13	1·0	...	...	...	...	2	2,324	2	0·8	...	...	...	...	1	16,184	5	0·3	1	1,133	1	0·8
November ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	19	30,796	162	5·2	56	83,701	856	10·2	23	30,800	204	6·6	22	43,991	281	6·3	70	109,034	737	6·7	1	16,184	101	6·2	40	50,273	477	9·4

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Town of the Cuddapah District during each Month of the Year 1878—(Continued).

Taluks	Pulivendala.				Rayachoti.				Kadiri.				Voilpaud.				Madhanapalle.				Total.			
Population	110,405.				128,150.				140,922.				145,581.				185,462.				1,350,967.			
Total No. of Villages in each Circle.	114.				104.				152.				118.				105.				1,311.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	14,079	93	6·6
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	14,278	60	4·2
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	3,976	10	2·5
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	1	990	5	5·0	...	...	...	...	3	2,551	50	19·5	...	...	...	...	...	...	...	...	9	20,634	70	3·3
June	7	14,464	45	3·1	...	...	...	...	2	6,893	10	1·4	...	...	...	...	...	...	...	...	59	106,525	341	3·2
July	9	22,655	143	6·4	...	...	...	...	3	3,925	18	4·6	...	...	...	...	...	...	...	...	154	250,432	1,579	6·3
August	6	12,020	95	7·9	2	5,303	3	0·5	...	...	...	...	...	...	...	...	...	...	...	...	117	226,006	754	3·3
September	3	9,293	31	3·3	1	726	1	1·3	...	...	...	...	1	4,155	7	1·6	9	19,611	25	1·2	30	140,011	323	2·3
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	32,880	21	0·6
November	...	...	...	...	...	...	...	...	1	711	10	14·0	...	...	...	...	...	...	...	...	1	711	10	14·0
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	18	34,474	319	9·2	3	6,029	4	0·6	7	12,227	88	7·1	1	4,155	7	1·6	9	19,611	25	1·2	269	441,275	3,261	7·3

71. The circumstances of the renewed outbreak of cholera in Bellary are peculiar and deserving of notice. Cholera had been prevailing in this district in 1877, but had entirely disappeared in September of that year. Not a case was heard of in the entire district until 18th April, when two deaths were reported in villages of the Hospet Taluk near Humphi; a festival was going on at Humphi at this time. This festival is visited by many persons from the Southern Mahratta country and Bombay Presidency, as well as by the Bellary population. Deaths from cholera were reported from Humphi, Hospet and Chithanadigi on the 19th and 20th. Before the end of the month of April 251 deaths had occurred in the Hospet Taluk. Seven deaths also occurred in Bellary municipal town, 1 in Bellary Taluk, 21 in Allur, 4 in Adoni, and 2 in Sundur. The main stress of the epidemic in this month was confined to the taluk in which the annual fair was being held, and there can be no reasonable doubt that the disease was imported into the Humphi fair. The Deputy Collector in reporting the occurrence distinctly states cholera appeared yesterday in epidemic form in the town of Hospet *amongst those who have returned from the Humphi festival,* in which place I hear two cases have occurred (letter 21st April 1878).

Bellary.

72. The principal day of the festival was 17th April, and on this date about 30,000 strangers were assembled at Humphi. The Hospital Assistant who was detailed for duty on the occasion states:—

> "Until the 19th April the place was healthy. On the 20th, when most of the pilgrims and bandies had left the station, cholera made its appearance. A Mahomedan bazaarman who had been to the feast at Narraickary, whence he came direct to Humphi, was the first attacked. Within four days 7 deaths were recorded from cholera at Humphi."

73. The statistical facts show that until the concourse of strangers at Humphi there was no cholera in the district, that the 17th April was the principal day of the festival, that on the 18th two cholera deaths in a village and close to the site of the festival took place, that cholera broke out at Hospet among the persons who had just returned from the fair, and that within the month cholera deaths had occurred in 22 villages of the Hospet Taluk.

74. If the assemblage of a crowd from various countries and an outbreak of cholera amongst them be merely a coincidence, it is a very curious one. It must be remembered that there was no cholera known to prevail anywhere within the Ceded Districts at this time. But if the contagium of the disease was not in some shape imported on this occasion, I am at a loss to account for the outbreak. The weather was fine, and there was nothing unusual in the conditions of the locality to account for the outbreak.

75. The total cholera mortality of the district, was 4,626. In April the mortality was almost entirely confined to Hospet, in May it had extended to 16 out of 19 registration circles of the district. From July the mortality rapidly declined, and in December the district was entirely free.

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Bellary District during each Month of the Year 1878.

Taluks	Bellary.				M. T. Bellary.				Hospet.				Kudligi.				Havinhudgalli.			
Population	130,474.				49,959.				93,420.				93,227.				89,454.			
Total No. of Villages in each Circle.	179.				1.				146.				382.				163.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	1	3,621	1	0·2	1	49,959	7	0·1	23	44,902	251	5·5	...	...	...	...	...	...	...	...
May	11	12,176	109	8·9	1	49,959	94	1·8	46	50,699	570	11·2	3	3,300	42	12·7	5	12,445	56	4·4
June	16	20,118	205	10·1	1	49,959	46	0·9	12	19,098	50	2·6	3	9,494	24	2·5	9	7,380	55	7·4
July	4	13,782	31	2·2	1	49,959	29	0·5	5	15,251	19	1·2	1	2,716	9	3·3	3	2,757	22	7·9
August	2	6,872	7	1·0	1	49,959	60	1·2	3	5,226	26	4·9	1	2,716	2	0·7	...	...	...	...
September	...	...	...	...	1	49,959	13	0·2	...	...	...	...	1	222	3	13·5	...	...	...	...
October	1	1,005	15	14·9	1	49,959	34	0·6	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	1	49,959	2	0·04	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	23	38,767	368	9·5	1	49,959	285	5·7	57	59,658	916	1·5	6	11,187	80	7·1	17	29,483	133	4·5

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Bellary District during each Month of the Year 1878—(Continued).

Taluks	Harpanahalli.				Allur.				Adoni.				M. T. Adoni.				Gooty.			
Population	85,720.				96,224.				158,789.				22,722.				187,766.			
Total No. of Villages in each Circle.	240.				106.				203.				1.				157.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	1	1,118	21	18·7	1	6,760	4	0·5	...	...	...	...	...	...	...	...
May	...	...	...	...	7	7,889	45	5·7	8	37,729	116	3·0	1	22,722	63	2·7	4	16,489	26	1·5
June	8	9,452	58	6·1	20	23,956	172	7·1	20	13,464	278	20·6	1	22,722	46	2·0	11	25,326	193	7·6
July	6	7,713	99	12·8	12	13,355	82	6·1	9	9,320	78	8·3	1	22,722	1	0·04	3	3,268	20	6·1
August	1	1,820	2	1·1	3	3,589	3	0·8	2	421	3	7·1	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	11	18,149	159	12·1	29	35,540	323	9·1	30	39,264	479	12·2	1	22,722	110	4·8	14	32,825	289	10·7

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Bellary District during each Month of the Year 1878—(Continued).

Taluks	M. T. Gooty.				Tadpatri.				Raidroog.				Anantapur.				M. T. Anantapur.				Dharmavaram.			
Population	6,705.				117,199.				87,774.				97,848.				4,909.				120,550.			
Total No. of Villages in each Circle.	1.				97.				156.				127.				1.				196.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	1	6,705	3	0·4	4	11,863	19	1·6	5	14,685	25	1·7	7	8,765	31	3·5	1	4,909	3	0·6	22	26,874	339	12·6
June	1	6,705	25	3·7	10	21,900	98	4·5	11	12,264	128	10·4	3	2,921	7	2·3	...	...	...	...	12	16,787	88	5·2
July	1	6,705	6	0·8	15	30,622	132	4·3	1	529	10	18·9	2	1,369	2	1·4	1	4,909	62	12·6	3	4,046	15	3·7
August	...	...	...	...	8	22,191	51	2·2	...	...	...	...	4	4,851	75	15·4	1	4,909	53	10·7	4	11,758	11	0·9
September	...	...	...	...	3	12,970	3	0·2	...	...	...	...	1	1,032	3	2·9	...	...	...	...	1	834	11	13·1
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	1	688	7	10·1	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	1	6,705	34	5·0	20	35,008	303	8·6	16	24,012	170	7·0	11	12,041	118	9·8	1	4,909	118	24·0	29	35,258	464	13·1

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Bellary District during each Month of the Year 1878—(Continued).

Taluks	Penukonda.				Hindupur.				Madaksira.				Sundoor Territory.				Total.			
Population	88,747.				87,895.				79,457.				14,981.				1,665,815.			
Total No. of Villages in each Circle.	115.				113.				159.				...				2,543.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	1	1,742	2	1·1	28	108,102	286	2·6
May	4	9,536	29	3·0	...	...	...	...	...	...	...	...	8	10,685	73	6·8	138	307,380	1,643	5·3
June	9	15,749	131	8·3	...	...	...	...	1	5,262	1	0·1	6	9,141	42	4·5	154	291,661	1,647	5·6
July	3	9,266	35	3·7	1	1,243	1	0·8	...	...	...	...	2	6,655	11	1·6	64	206,187	664	3·2
August	...	...	...	...	...	...	...	...	...	...	...	...	2	646	2	3·1	32	114,958	295	2·5
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	65,017	33	0·5
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	50,964	49	0·9
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	50,647	9	0·2
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	9	15,769	195	12·3	1	1,243	1	0·8	1	5,262	1	0·1	11	11,591	130	11·2	289	473,847	4,626	9·7

Digitized by Google

76. The only cholera in this district was connected with the epidemic of the preceding year. All the deaths, 7 in number, occurred in January and February. There was no extension of the epidemic affecting Bellary, Kurnool and Cuddapah to this district, and it is noteworthy that the taluks of Cuddapah adjoining this district, viz., Madhanapalle, Vayalpad and Rayachoti, were almost exempt from cholera in 1878.

North Arcot.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the North Arcot District during each Month of the Year 1878.

Taluks	Chittur.				Chandragiri.				Palmanair.				Gudiyatam.				Vellore.			
Population	212,949.				99,598.				60,194.				163,969.				141,020.			
Total No. of Villages in each Circle.	714.				826.				565.				265.				192.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	3	1,134	29	25·5	...	...	...	...	...	...	...	...	2	1,645	6	3·6	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	1	919	1	1·0	1	1,644	2	1·2
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	3	1,134	29	25·5	...	...	...	...	...	...	...	...	3	2,564	7	2·7	1	1,644	2	1·2

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the North Arcot District during each Month of the Year 1878—(Continued).

Taluks	M. T. Vellore.				Polur.				Wandiwash.				Arcot.			
Population ...	37,569.				109,150.				153,507.				157,387.			
Total No. of Villages in each Circle.	1.				231.				424.				356.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	1	1,621	3	1·8	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	...	...	...	...	...	...	...	...	1	1,621	3	1·8	...	...	...	...

Taluks	Wallajapet.				M. T. Wallajapet.				Zemindaries.				Total.			
Population ...	203,841.				12,099.				663,976.				2,014,254.			
Total No. of Villages in each Circle.	311.				1.				1,855.				5,241.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	1	4,604	10	2·1	1	12,099	3	0·2	4	7,412	16	2·1	12	26,515	67	2·3
February	...	...	...	...	...	...	...	...	2	561	4	7·1	4	3,124	7	2·2
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	1	4,604	10	2·1	1	12,099	3	0·2	5	7,545	20	2·6	15	31,211	74	2·4

Digitized by Google

77. A little cholera remained in this district at the beginning of the year. 273 deaths were registered in January and 209 in February. The total mortality in the district was 697; the epidemic was practically extinct for the last four months of the year.

Salem.

The Oosoor and Krishnagiri Taluks were practically free of cholera throughout the year.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Salem District during each Month of the Year 1878.

Taluks	Salem.				M. T. Salem.				Atur.				Namkal.				Trichengode.			
Population	343,584.				49,873.				164,005.				260,984.				249,662.			
Total No. of Villages in each Circle.	636.				1.				193.				574.				598.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	29	32,938	85	2·6	1	49,873	49	0·9	10	15,714	13	0·8	21	36,379	85	2·3	...	...	...	...
February	12	7,510	30	3·9	1	49,873	40	0·8	4	5,247	19	3·6	12	19,184	19	0·9	10	24,422	65	2·6
March	11	10,774	32	2·9	1	49,873	6	0·1	3	3,395	6	1·7	4	13,680	9	0·6	5	12,239	39	3·1
April	3	3,363	7	2·0	...	...	...	...	...	...	...	...	2	2,226	2	0·8	...	...	...	...
May	2	2,790	7	2·5	...	...	...	...	...	...	...	...	2	2,720	2	0·7	...	...	...	...
June	2	1,810	4	2·2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	3	3,277	13	3·9	...	...	...	...	1	619	3	4·8	...	...	...	...	...	...	...	...
August	3	2,702	4	1·4	...	...	...	...	2	2,122	3	1·4	2	3,062	2	0·6	...	...	...	...
September	2	2,775	4	1·4	...	...	...	...	...	...	...	...	4	5,509	5	0·9	...	...	...	...
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	1	858	1	1·1	...	...	...	...	...	...	...	...
Total ...	59	51,921	186	3·5	1	49,873	95	1·9	19	25,448	45	1·7	34	58,331	124	2·1	13	28,260	104	3·6

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Salem District during each Month of the Year 1878—(Continued).

Taluks	Oosoor.				Krishnagiri.				Dharampuri.				Tirupatur.				Utankarai.				Total.			
Population	192,939.				170,232.				190,619.				190,666.				153,798.				1,966,362.			
Total No. of Villages in each Circle.	942.				612.				740.				448.				568.				5,312.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	2	475	3	6·3	1	3,228	1	0·3	7	4,536	21	4·6	7	10,260	16	1·5	...	...	...	...	78	153,392	273	1·7
February	...	...	...	...	1	4,410	2	0·4	8	4,298	30	6·9	1	3,123	2	0·6	2	649	2	3·0	51	118,716	209	1·7
March	...	...	...	...	...	...	...	...	4	3,173	19	5·9	...	...	...	...	...	...	...	...	28	93,134	111	1·2
April	...	...	...	...	...	...	...	...	...	...	...	...	1	70	1	14·2	...	...	...	...	6	5,659	10	1·8
May	...	...	...	...	...	...	...	...	...	...	...	...	1	649	1	1·5	...	...	...	...	5	6,159	10	1·6
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	3,197	1	3·1	4	5,007	5	0·9
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	4,934	31	6·2	10	8,211	47	5·7
August	...	...	...	...	3	1,358	3	2·2	...	...	...	...	1	12,837	2	0·1	1	1,763	6	3·4	11	23,844	20	0·8
September	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	6	8,284	9	1·1
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	1	3,128	2	0·6	...	...	...	...	1	3,986	3	0·7
Total ...	2	475	3	6·3	4	8,996	6	0·6	14	7,982	70	8·8	10	23,816	24	0·1	9	5,906	40	6·5	165	260,960	697	2·7

Digitized by Google

Coimbatore.

78. Only 365 deaths from cholera were registered. They occurred principally in Satyamangalam and Karur. The epidemic was extinct at the end of the year.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Coimbatore District during each Month of the Year 1878.

Taluks ...	Coimbatore.				M. T. Coimbatore.				Erode.				M. T. Erode.			
Population ...	206,561.				34,968.				223,353.				10,188.			
Total No. of Villages in each Circle ...	297.				1.				209.				1.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affect ed.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January ...	4	7,820	6	0·7	1	34,968	2	0·05	1	2,228	3	1·3	1	10,188	6	0·5
February ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March ...	1	2,469	1	0·4	...	...	...	...	2	2,000	2	1·0	...	...	...	...
April ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August ...	2	495	2	4·0	...	...	...	...	1	2,508	3	1·1	...	...	...	...
September ...	3	4,167	10	2·4	...	...	...	...	1	3,914	5	1·2	1	10,188	1	0·09
October ...	2	3,929	7	1·7	1	34,968	2	0·05	2	3,754	2	0·5	...	...	...	...
November ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	11	18,240	26	1·4	1	34,968	4	0·1	7	14,404	15	1·04	1	10,188	7	0·6

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Coimbatore District during each Month of the Year 1878—(Continued).

Taluks	Satyamangalam.				Pollachi.				Palladam.				Bhavani.				Collegal.			
Population	169,913.				167,545.				237,745				102,808.				90,825.			
Total No. of Villages in each Circle.	237.				164.				194.				67.				150.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	2	4,186	8	1·9	2	2,224	4	1·8	1	463	2	4·3	...	...	...	...	1	282	2	7·0
February	...	...	...	...	...	...	...	...	...	...	...	...	2	8,108	7	0·8	...	...	...	...
March	1	260	24	92·3	1	5,486	1	0·1	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	9	10,558	22	2·0	...	...	...	...	...	...	...	...	...	...	...	...	1	1,182	13	10·9
September	8	12,711	42	3·3	...	...	...	...	1	1,037	1	0·9	2	1,491	5	3·3	...	...	...	...
October	2	5,879	15	2·5	...	...	...	...	...	...	...	...	4	24,452	16	0·6	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	17	25,808	111	4·3	3	7,710	5	0·6	2	1,499	3	2·0	7	27,528	28	1·01	2	1,464	15	10·3

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Coimbatore District during each Month of the Year 1878—(Continued).

Taluks	Udumalpetai.				Karur.				M. T. Karur.				Dharapuram.				Total.			
Population	123,641.				166,270.				9,378.				217,489.				1,762,679.			
Total No. of Villages in each Circle.	94.				91.				1.				83.				1,579.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	7	37,061	60	1·6	1	9,378	3	0·3	1	1,377	1	0·7	22	110,194	97	0·8
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	8,103	7	0·6
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	10,215	28	2·7
April	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	2	3,019	40	13·2	...	...	...	...	...	...	...	...	15	17,762	80	4·5
September	...	...	...	...	2	4,470	42	9·3	1	9,378	1	0·1	...	...	...	...	19	47,356	107	2·2
October	...	...	...	...	1	1,340	2	1·4	...	...	...	...	...	...	...	...	12	74,322	44	0·5
November	...	...	...	...	...	...	...	...	1	9,378	2	0·2	...	...	...	...	1	9,378	2	0·2
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	...	...	...	...	10	43,280	144	3·3	1	9,378	6	0·6	1	1,377	1	0·7	63	196,789	365	1·8

Digitized by Google

79. Seventeen deaths are registered as having occurred from cholera in the Nilgiris, nine of which occurred in Ootacamund, and eight in the town of Coonoor. The cases at Ootacamund occurred while I was residing in the station. I ascertained that in three, if not more, of the earlier cases the individuals had been to Gudalur, on the Wynad side of the Hills, and were attacked at different intervals of time after their return. The cases occurring in the Ootacamund bazaar were living in the lowest street, where the drainage was defective and insanitary conditions abounding.

Nilgiris.

At Coonoor the earlier cases occurred in a working party on the old ghat, and afterwards the disease broke out amongst some residents of Coonoor. The localities were inspected, but there was nothing peculiar about their condition. The cases in Ootacamund occurred in July and August, and in Coonoor in August and September. I believe that cholera was brought up to the Hills from the Gudalur side in the month of July, and that Coonoor was subsequently infected. The precautions taken in both instances served to prevent the extension of the disease and it soon passed away.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Nilgiri District during each Month of the Year 1878.

Taluks	Nilgiris.				M. T. Ootacamund.				M. T. Coonoor.				Total.			
Population	60,275.				9,213.				2,908.				72,396.			
Total No. of Villages in each Circle.	18.				1.				1.				20.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
February	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	1	9,213	2	0·2	...	...	...	...	1	9,213	2	0·2
August	...	...	...	...	1	9,213	6	0·6	1	2,908	4	1·3	2	12,121	10	0·8
September	...	...	...	...	1	9,213	1	0·1	1	2,908	4	1·3	2	12,121	5	0·4
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	...	...	...	...	1	9,213	9	0·9	1	2,908	8	2·7	2	12,121	17	1·4

80. There were 349 deaths registered in this district, and of these 338 occurred in January and February. Cholera was practically non-existent for the remainder of the year.

South Canara.

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the South Canara District during each Month of the Year 1878.

Taluks	Mangalore.				M. T. Mangalore.				Cassergode.				Uppinangadi.				Udipi.				Kandapur.				Total.			
Population	213,055.				29,423.				222,577.				107,722.				231,554.				113,711.				918,042.			
Total No. of Villages in each Circle.	315.				1.				243.				279.				263.				190.				1,291.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	4	4,451	13	2·9	...	...	...	...	40	66,374	179	2·6	15	9,417	44	4·6	13	16,927	56	3·3	1	602	1	1·6	73	97,771	293	2·9
February	2	1,237	2	1·6	...	...	...	...	7	5,975	32	5·3	2	895	4	4·4	3	3,057	6	1·9	1	1,524	1	0·6	15	12,688	45	3·5
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	2	1,332	4	3·0	2	2,514	2	0·7	...	...	...	...	...	...	...	...	4	3,846	6	1·5
May	1	2,516	1	0·3	...	...	...	...	1	787	1	1·3	...	...	...	...	...	...	...	...	...	...	...	...	2	3,253	2	0·6
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	1	564	2	3·5	...	...	...	...	...	...	...	...	1	564	2	3·5
Total ...	7	8,204	16	1·9	...	...	...	...	42	67,706	216	3·2	20	13,390	52	3·8	13	16,927	62	3·6	2	2,126	3	1·4	84	108,353	349	3·2

81. The total deaths in this district were 883, distributed through all the months of the year. The strange circumstance in regard to cholera in this district was the unusually large mortality in the municipal towns, viz. :—

Malabar.

	Deaths.
Tellicherry	124
Calicut	54
Cochin	125
Palghat	14
Total ...	317

82. The population of these towns is only 109,587, and of the remaining parts of the district 2,118,641. The towns give 317 deaths from cholera, and the country district 566. Cholera seemed to cling a good deal to the coast towns, but except in the instances given, was not very severe.

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Malabar District during each Month of the Year 1878.

Taluks	Cherakal.				M. T. Cannanore.				Kotayam.				M. T. Tellicherry.				Kurambranad.			
Population	206,815.				28,840.				142,448.				19,434.				248,640.			
Total No. of Villages in each Circle.	44.				1.				27.				1.				57.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	7	45,600	30	0·6	...	...	...	...	1	3,783	8	0·7	...	...	...	...	1	5,408	1	0·1
February	2	13,200	27	2·0	...	...	...	...	1	6,919	7	1·0	1	19,434	46	2·3	3	20,721	16	0·7
March	4	26,091	16	0·6	1	28,840	6	0·2	4	13,458	17	1·3	1	19,434	67	3·4	...	...	...	...
April	2	10,072	11	1·0	...	...	...	...	2	12,470	7	0·5	1	19,434	8	0·41	...	...	...	...
May	2	7,609	11	1·4	...	...	...	...	3	9,560	12	1·2	1	19,434	3	0·1	...	...	...	...
June	1	4,330	1	0·2	...	...	...	...	1	5,405	4	0·7	...	...	...	...	1	7,870	1	0·1
July	1	5,938	2	0·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September	...	...	...	...	...	...	...	...	1	4,849	2	0·4	...	...	...	...	...	...	...	...
October	2	10,943	2	0·1	1	28,840	5	0·1	...	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	4,968	2	0·4
Total ...	13	74,806	100	1·3	1	28,840	11	0·3	12	43,678	52	1·1	1	19,434	124	6·3	5	31,097	20	0·6

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Malabar District during each Month of the Year 1878—(Continued).

Taluks	Calicut.				M. T. Calicut.				Ernad.				Ponani.				Valuvanad.				Palghat.			
Population ...	141,641.				47,149.				287,680.				374,708.				292,447.				295,082.			
Total No. of Villages in each Circle.	38.				1.				52.				73.				64.				57.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	1	3,922	1	0·3	...	...	...	...	...	...	...	...
February	1	3,695	1	0·3	1	47,149	5	0·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	9,698	3	0·3	1	1,215	2	1·6
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	7,301	15	2·0	1	8,267	2	0·2
May	...	...	...	...	...	...	...	...	...	...	...	...	1	5,733	1	0·1	3	43,454	18	0·4	1	8,267	4	0·4
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	15,506	10	0·6	1	8,267	10	1·2
July	...	...	...	...	...	...	...	...	...	...	...	...	1	3,111	6	1·9	2	10,557	5	0·4	...	...	...	...
August	...	...	...	...	...	...	...	...	...	...	...	...	7	34,791	58	1·6	2	10,870	2	0·1	...	...	...	...
September	1	4,028	2	0·4	1	47,149	20	0·4	...	...	...	...	7	48,800	98	2·1	...	...	...	...	2	10,697	10	0·9
October	1	4,661	3	0·6	1	47,149	29	0·5	1	6,280	1	0·1	5	29,962	36	1·2	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	2	14,106	29	2·0	...	...	...	...	...	...	...	...	...	...	...	...
December	...	...	...	...	...	...	...	...	3	16,308	14	0·8	2	10,887	2	0·1	4	17,205	30	1·7	2	12,899	8	0·6
Total ...	3	12,384	6	0·4	1	47,149	54	1·1	5	28,545	44	1·5	13	77,591	197	2·5	13	61,181	83	1·3	9	24,751	36	1·4

Digitized by Google

Table showing particulars of Cholera Deaths in the different Taluks and Municipal Towns of the Malabar District during each Month of the Year 1878—(Continued).

Taluks	M. T. Palghat.				Wynad.				Cochin.				M. T. Cochin.				Anjengo.				Tangacherry.				Total.			
Population	30,689.				100,148.				5,697.				12,315.				...				...				2,228,228.			
Total No. of Villages in each Circle.	1.				16.				3.				1.				...				...				436.			
Months.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.	No. of Villages affected.	Population of affected Villages.	Cholera Deaths.	Ratio per 1,000 of Population.
January	...	...	...	...	...	...	...	...	...	...	...	...	1	12,315	3	0·2	...	...	...	...	...	...	...	...	11	71,028	38	0·5
February	1	30,689	1	0·03	...	...	...	...	...	...	...	...	1	12,315	1	0·08	...	...	...	...	...	...	...	...	11	154,122	104	0·6
March	1	30,689	12	0·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14	129,425	123	0·9
April	1	30,689	1	0·03	...	...	...	...	...	...	...	...	1	12,315	11	0·8	...	...	...	...	...	...	...	...	10	100,548	55	0·5
May	...	...	...	...	1	10,331	4	0·3	...	...	...	...	1	12,315	3	0·08	...	...	...	...	...	...	...	...	13	116,708	56	0·4
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	41,378	26	0·6
July	...	...	...	...	...	...	...	...	...	...	...	...	1	12,315	4	0·3	...	...	...	...	...	...	...	...	5	31,921	17	0·5
August	...	...	...	...	...	...	...	...	1	1,412	4	2·8	1	12,315	24	1·9	...	...	...	...	...	...	...	...	11	59,388	88	1·4
September	...	...	...	...	...	...	...	...	1	1,412	4	2·8	1	12,315	51	4·1	...	...	...	...	...	...	...	...	14	124,184	182	1·4
October	...	...	...	...	...	...	...	...	1	1,412	5	3·5	1	12,315	14	1·1	...	...	...	...	...	...	...	...	13	141,512	95	0·6
November	...	...	...	...	...	...	...	...	...	...	...	...	1	12,315	8	0·6	...	...	...	...	...	...	...	...	3	26,421	37	1·4
December	...	...	...	...	...	...	...	...	...	...	...	...	1	12,315	6	0·4	...	...	...	...	...	...	...	...	13	74,577	62	0·8
Total ...	1	30,689	14	0·4	1	10,331	4	0·3	1	1,412	13	9·2	1	12,315	125	10·1	...	...	...	...	...	...	...	...	80	504,198	883	1·7

Digitized by Google

88. Cholera in the Army.—Cholera cases occurred in Bellary, Cannanore, Kamptee, Maliyapuram, Poonamallee, Rangoon, Secunderabad, Trichinopoly, Thayetmyo and Tonghoo. The total sickness in the European Army was 43 and deaths 28. The months of prevalence will be seen in the following table :—

European Troops.

Table showing the Number of Admissions and Deaths from Cholera among the European Troops in each Month of the Year 1878.

Stations.	Strength.	Months. January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Total Admissions.	Total Deaths.	Ratio per 1,000 of Strength. Admissions.	Deaths.
		A.	D.	A.	D.	A	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.				
Bangalore	1,610	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bellary	869	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	2	2	2·3	2·3
Cannanore	640	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	2	2	3·1	3·1
Calicut	98	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kamptee	845	...	...	...	...	...	...	...	...	...	...	...	...	3	1	...	...	2	2	...	...	...	...	...	...	5	3	5·9	3·5
Madras	590	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maliyapuram ...	95	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	2	2	21·05	21·05
Poonamallee ...	159	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	6·3	...
Pallavaram	26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Port Blair	130	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ramandroog ...	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rangoon	750	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	2	...	...	...	...	...	...	...	...	6	2	8·0	2·6
St. Thomas' Mount ...	318	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Secunderabad ...	2,471	...	...	1	1	...	...	...	...	...	...	...	...	6	4	11	7	...	...	...	...	...	...	...	...	18	12	7·2	4·8
Seetabuldee ...	48	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichinopoly ...	269	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	...	3	2	11·1	7·4
Thayetmyo	618	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	3·2	3·2
Tongoo	398	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	1	2·5	2·5
Wellington	407	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total British Troops at stations.	10,366	1	1	1	1	...	...	2	2	...	...	2	2	10	6	18	9	4	3	...	...	2	2	2	2	42	28	4·0	2·7
On the march ...	152	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	6·5	...
Royal Engineers ...	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	10,528	1	1	1	1	...	...	2	2	...	...	2	2	10	6	18	9	4	3	...	...	2	2	2	2	43	28	4·08	2·6
European Veterans.																													
Pallavaram	65	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vizagapatam ...	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	89	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Garrisons.																													
Bangalore... ...	26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cannanore	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kamptee	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Secunderabad ...	41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rangoon	26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vizagapatam ...	32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	145	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Digitized by Google

Native Troops.

84. Cholera cases were noticed in the Native Army in the following stations: Bellary, Berhampore, Cuttack, Hooshungabad, Kamptee, Madras, Moulmein, Palamcottah, Raepore, Rangoon, Secunderabad, Seetabuldee, Thayetmyo, Tonghoo, Trichinopoly, Vellore, and Vizianagram. The total cases treated at these stations was 106, with 60 deaths.

Particulars as to seasons of prevalence will be found in the following table:—

Table showing the Number of Admissions and Deaths from Cholera among the Native Troops in each Month of the Year 1878.

Stations.	Strength.	Months.																								Total Admissions.	Deaths.		Ratio per 1,000 of Strength.	
		January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.			In Hospital.	Out of Hospital.	Admission.	Deaths in and out of hospital.
		A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.					
Bangalore ...	1,768	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bellary ...	1,642	...	...	...	...	...	...	...	...	...	...	3	4	...	...	...	...	10	6	13	9	1	...	...	...	27	18	1	16·4	11·5
Berhampore ...	360	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2	1	1	1	...	...	...	...	...	...	4	2	...	11·1	5·5
Cannanore ...	896	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chandah ...	73	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cuttack ...	658	...	...	...	...	...	...	...	...	3	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	3	...	2	4·5	3·0
French Rocks ...	570	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hooshungabad.	363	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	2	5	1	...	...	...	...	...	...	8	3	...	22·0	8·2
Kamptee ...	1,315	...	...	...	...	...	...	...	...	...	...	...	...	9	3	2	2	...	...	...	...	...	...	...	...	11	4	1	8·3	3·8
Lovedale or Nilgiris.	75	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Madras ...	2,093	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	0·4
Mangalore ...	636	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mercara ...	627	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Moulmein ...	361	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	2·8	2·8
Mysore ...	63	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nicobars ...	49	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Palamcottah ...	563	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	1	1·8	1·8
Pallavaram ...	549	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Port Blair ...	584	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Quilon	484	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Raepore ...	615	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	1·6	1·6
Rangoon ...	1,441	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	2	1	...	1·4	0·7
Secunderabad ...	3,158	3	2	1	...	2	...	...	...	8	4	...	...	6	4	1	1	2	2	...	...	1	1	...	...	24	13	1	7·5	4·4
Seetabuldee ...	449	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	1	...	2·2	2·2
Seroncha ...	174	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Shoagheen ...	115	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Thomas' Mount.	182	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sambalpur ...	306	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thayetmyo ...	604	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	1·6	1·6
Tonghoo ...	704	...	...	5	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	2	...	7·1	2·8
Trichinopoly ...	1,872	9	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	5	...	4·8	2·6
Trichoor ...	165	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trevandrum ...	84	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vellore ...	633	3	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	1	...	6·3	1·5
Vizagapatam ...	699	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vizianagram ...	566	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	1	...	4	...	...	7·0	...
Total ...	25,496	17	8	6	2	3	...	3	1	12	5	4	8	18	9	7	6	19	10	13	9	3	2	1	...	106	53	7	4·1	2·8

Cholera in Jails.

85. The Central Jails were almost free of cholera in 1878, but epidemic outbreaks occurred in the following District Jails:—Bellary, Berhampore, Cuddalore, Kurnool, Madura, Rajahmundry, Russelkonda, Tellicherry, Tranquebar and Vizagapatam. The total of cholera cases treated in Jails was 262 with 110 deaths. The following extracts give particulars in regard to outbreaks of cholera in jails :—

Bellary.—"During the year there were 16 cases of cholera and 11 deaths. The disease first appeared on the 19th May and the last case was on the 23rd June." The medical officer gives no particulars, but it is known that cholera appeared in the town of Bellary on the 26th April 1878, and that it continued to prevail amongst the civil population and military in the cantonment until November.

Berhampore—"The first case of cholera occurred on the 9th May and continued till the 21st July. There were 16 cases in all treated and 9 deaths. The first three cases occurred in prisoners, two of whom had been two days in jail and one eight days. At the time of these cases cholera was bad in various villages, in the district, and in the jail police and warders' lines."

Kurnool.—"Two epidemics of cholera occurred in the jail. The first outbreak was on the 1st June in the person of a prisoner employed on external labor. On the 2nd and 3rd of June further cases occurred, followed by no more till the 7th June. From this date up to the 12th June there were 14 cases, making a total of 19. All hygienic precautions to cope with the epidemic within the jail area proving useless, the prisoners were marched to camp on a hill 450 feet high, 3½ miles from the town. Although two cases occurred during transit to this point, and two further cases during the night of arrival, the population became at once healthy. The jail having been carefully fumigated, whitewashed, and newly floored, the prisoners were marched back to jail after three weeks residence on the hill."

"Five days after return, viz., the 6th July, cholera made its reappearance. Preparations were quickly made to return to camp. Just before starting a prisoner was attacked with cholera. After encamping three days there was a solitary case, after which the epidemic shewed no further sign."

Cholera broke out in the town of Kurnool on the 2nd June and continued until 7th November, causing 351 deaths amongst the civil population. The old jail is in the heart of the town. It has long since been condemned as an improper site, and a new jail has been approved of outside of the town, but it has not yet been built. The good effects of removal from an infected locality are plainly shown in the march of the prisoners to a camp.

Kurnool Camp Jail.—"Beside the Kurnool Jail, a standing camp jail was maintained for the accommodation of extra prisoners, and in this temporary jail cholera broke out on the 18th June, and the last case occurred on 26th July. The medical officer writes: The total of attacks were 13 and deaths 6. Cases having occurred at long intervals it was not thought necessary to remove the prisoners into camp."

Madura.—The medical officer remarks that "the epidemic was in continuation of that of the previous year. But there were no cases in January, and a revival of the epidemic appears to have occurred in February and March. The number of cases was 132 and deaths 35. This jail was much overcrowded at the time, and the arrangements for the separation of newly admitted prisoners were very defective."

Russelkonda.—"Six prisoners were attacked with cholera in the jail, three on the 10th and three on the 13th of December, all of whom died. The disease appears to have been introduced by a police constable, who had been attacked while on jail guard duty two days before the outbreak in the jail. Cholera prevailed at the time in the village in which the constable and his family resided."

Tellicherry.—"There were four cases of cholera in the month of May; of these three proved fatal. No apparent cause for the outbreak was discovered."

It may be noted here that deaths from cholera in the town of Tellicherry were reported in February.

Tranquebar.—"Cholera was epidemic in the month of February. The first case was a prisoner, who was attacked on the 19th February while on extramural work. He died the same day. He appeared quite well on leaving for work that morning, and had been two months in jail. The town and its suburbs were quite free of the disease at the time. An interval of four days elapsed, when two more cases occurred on the 23rd, and three on the 25th. From the latter date to the 2nd March four more occurred, making a total of 10 attacks and 5 deaths. The origin of the outbreak could not be traced."

The medical officer does not allude to the fact that cholera at this time was prevailing in the Tanjore District and in the Mayavaram Taluk in which the town

Digitized by Google

of Tranquebar is. The following extract from the daily cholera report will show the number of villages affected and cholera deaths in February :—

Taluk.	Deaths from Cholera.	Number of Villages affected.
Mayavaram	20	10

Vizagapatam.—"Cholera appeared in an epidemic form on the 12th July, and the last case occurred on the 25th idem. 23 cases were admitted and of them 13 died. The disease broke out again on the 27th October, and the last case occurred on 1st November. Seven cases were admitted, four proved fatal."

"The first epidemic was probably introduced by a constable of the jail guard, who was attacked on the 12th and died the same evening. The second epidemic was probably brought in by a hill-man who was attacked a couple of days after admission from Koraput."

With reference to these remarks it is necessary to state that cholera was prevailing in the town of Vizagapatam in the following months :—

	Deaths registered.
January	8
February	1
March	1
April	4
May	1
June	1
July	27
August	23
September	4
October	1
November	2
December	4

86. In these jail outbreaks of cholera there is no new feature to be noticed. In all cases the jail population kept free of cholera until the epidemic had appeared in the neighboring towns. There is nothing to show that the condition of the jails gave rise to the outbreaks.

Particulars as to the seasons of prevalence are given in the following table :—

Table showing the prevalence of Cholera in each Jail of the Madras Presidency in each Month of the Year 1878.

Jails.	Average Strength for the year.	Number of Admissions and Deaths in each month.																								Total Admissions.	Total Deaths.	Ratio per 1,000 of Strength.	
		January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.				Admissions.	Deaths.
		A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.				
European Prison.																													
Ootacamund ...	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Central Jails.																													
Cannanore ...	840	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coimbatore ...	1,398	...	...	...	...	*1	...	*1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	1·4	...
Rajahmundry ...	1,193	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Salem	1,688	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	1·1	1·1
Trichinopoly. } Do. Camp. }	1,827	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vellore ... } Do. Camp. }	1,775	...	...	...	...	*1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	0·5	...

* Malignant.

Digitized by Google

Table showing the prevalence of Cholera in each Jail of the Madras Presidency for each Month of the Year 1878—(Continued).

Jails.	Average Strength for the year.	Number of Admissions and Deaths in each month. January. A.	January. D.	February. A.	February. D.	March. A.	March. D.	April. A.	April. D.	May. A.	May. D.	June. A.	June. D.	July. A.	July. D.	August. A.	August. D.	September. A.	September. D.	October. A.	October. D.	November. A.	November. D.	December. A.	December. D.	Total Admissions.	Total Deaths.	Ratio per 1,000 of Strength. Admissions.	Ratio per 1,000 of Strength. Deaths.
District Jails.																													
Bellary ...	1,838	...	...	...	...	...	...	...	...	1	1	15	10	...	...	...	...	...	...	...	...	...	...	...	...	16	11	8·6	5·9
Berhampore ...	337	...	...	...	...	...	...	...	...	1	...	1	...	14	9	...	...	...	...	...	...	...	...	...	...	16	9	47·4	26·7
Calicut ...	268	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chingleput ...	347	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chittur ...	532	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coimbatore ...	463	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cuddalore ...	1,117	2	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3	2·6	2·6
Cuddapah ...	518	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Guindy ...	73	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Guntoor ...	287	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Her Majesty's Jail, Madras.	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kurnool ...	721	...	...	...	...	...	...	...	...	...	...	19	9	5	2	...	...	...	...	...	...	...	...	...	...	24	11	51·3	23·5
Do. Camp...		...	...	...	...	...	...	...	...	...	...	2	1	11	5	...	...	...	...	...	...	...	...	...	...	13	6		
Madura ...	1,137	...	...	113	27	19	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	132	35	116·0	30·7
Mangalore ...	213	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Masulipatam ...	139	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nellore ...	1,061	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ootacamund ...	150	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Palamcottah ...	486	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Penitentiary ...	887	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rajahmundry ...	274	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	1	3·6	3·6
Russelkonda ...	166	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	6	7	6	42·1	36·0
Tanjore ...	244	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tellicherry ...	124	...	...	...	...	...	...	...	...	4	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	3	32·2	24·1
Tranquebar ...	153	...	...	8	5	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	5	65·3	32·6
Trichinopoly ...	265	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vizagapatam ...	537	...	...	...	...	1	1	...	...	...	...	...	...	23	13	...	...	...	...	6	1	1	3	...	...	31	18	57·7	33·4
Palghat ...	341	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	21,364	2	1	122	34	26	11	2	...	6	4	37	20	53	29	...	...	...	...	6	1	1	3	7	7	262	110	12·2	5·1

SMALL-POX.

87. The deaths registered from small-pox were 56,360. Of these 29,384 were males and 26,976 females. The ratio of mortality was 1·9 per mille against 1·2 per mille, the average of the five years previous to the famine.

88. The disease was prevailing epidemically in certain districts during the early part of the year. The maximum mortality occurred in March, and from that time the epidemic slowly declined.

89. The districts in which small-pox had distinct epidemic prevalence are noted below with the number of deaths :—

	Deaths.	Ratio per Mille.
Godavari	18,075	11·4
Kistna	4,817	3·3
South Arcot	4,491	2·5
Tanjore	9,068	4·6
Malabar	5,382	2·4

90. It will be seen that the Godavari District suffered more than any of the others. Extra Vaccinators were employed in this district during the time when small-pox was most prevalent. The condition of the population in regard to food-distress, no doubt favored the spread of small-pox.

91. The column in the table (Appendix VIII) showing the number of deaths amongst children under 1 and 12 years of age cannot be filled up for the districts, as the information could not be obtained from the Collectors. It will be given in

Digitized by Google

the report for 1879. But as regards Municipal towns the information has been obtained for 1878, and the figures are certainly very instructive in regard to the way in which small-pox expends its force on the younger members of a community. If the figures given for the towns may be taken as an index of the mortality in the whole population, then it may safely be said that more than two-thirds of the small-pox mortality of the country occurs in children under 12 years of age.

Municipalities.		Population.	Deaths from Small-pox.			
			Under 1 year.	Under 12 years.	Above 12 years.	Total.
Ganjam ...	Chicacole	15,587	1	3	2	6
	Berhampore	21,670	4	19	5	28
Vizagapatam	Vizagapatam	32,191	4	29	8	41
	Bimlipatam	8,744	...	1	...	1
	Vizianagram	20,169	2	2	6	10
	Anakapalle	13,044	2	4	12	18
Godavari ...	Cocanada	17,839	36	124	93	253
	Rajahmundry	19,738	31	120	37	188
	Ellore	25,487	29	59	42	130
Kistna ...	Masulipatam	36,188	Information not given.			86
	Guntoor	18,033	11	24	4	39
Nellore ...	Nellore	29,922	3	1	...	4
	Ongole	7,392	...	1	3	4
Madras ...	Madras	397,552	60	356	31	447
Chingleput.	Conjeveram	37,327	16	39	3	58
South Arcot.	Cuddalore	40,290	24	74	46	144
	Chilambaram	15,519	18	39	8	65
Trichinopoly.	Trichinopoly	76,530	3	50	2	55
	Srirangam	18,655	2	4	1	7
Tanjore ...	Tanjore	52,175	1	49	4	54
	Combaconum	44,444	21	40	15	76
	Mayavaram	21,165	4	16	4	24
	Negapatam	48,525	17	40	9	66
	Mannargudi	17,703	4	17	10	31
Madura ...	Madura	51,987	8	25	5	38
	Dindigul	12,865	3	6	...	9
Tinnevelly.	Tinnevelly	21,044	3	19	...	22
	Palamcottah	17,945	6	15	3	24
	Tuticorin	10,565	...	13	1	14
Kurnool ...	Kurnool	25,579	...	...	3	3
Cuddapah ...	Cuddapah	16,275	...	...	1	1
Bellary ...	Bellary	51,766	Information not given.			25
	Adoni	22,723	2	12	...	14
	Gooty	6,730	...	...	...	...
	Anantapur	4,918	...	...	...	...
North Arcot.	Vellore	38,022	3	15	2	20
	Wallajapet	12,103	1	10	...	11
Salem ...	Salem	50,012	18	43	6	62
Coimbatore.	Coimbatore	35,310	6	21	...	27
	Erode	10,201	1	3	...	4
	Karur	9,378	1	3	1	5

Digitized by Google

Municipalities.		Population.	Deaths from Small-pox.			
			Under 1 year.	Under 12 years.	Above 12 years.	Total.
Nilgiris ...	Ootacamund	9,982	Information not given.			12
	Coonoor	3,058	...	...	1	1
South Canara.	Mangalore	29,712	...	...	...	...
Malabar ...	Tellicherry	20,504	...	...	1	1
	Calicut	47,962	7	99	214	320
	Palghat	30,752	45	105	144	294
	Cochin	13,840	8	28	129	165
	Cannanore	31,358	1	...	...	1
	Total ...	1,620,480	401	1,528	856	2,908

92. The attention of Vaccinators and of local authorities has frequently been called to the necessity of prosecuting vaccination amongst young children, preferably those under one year of age. But there are difficulties in the way, and the people generally make objections to the vaccination of children below one year of age. Local Boards and Municipalities can do some good in insisting on the importance of infantile vaccination, and in encouraging it to the utmost. In future the chief test of the efficiency of vaccination in a district or town must be the proportions of vaccinated under one year of age to the registered births in the district or town; until this proportion reaches from one-half or three-fourths of the births, it must be evident that the Vaccine Establishment is doing but little to secure the population from periodical epidemics of small-pox.

FEVERS.

93. The fever mortality was undoubtedly high during 1878. Apart from the registration, which is not absolutely reliable in regard to this cause of death, there is other evidence to show that malarious fevers were abnormally prevalent in the country. Probably this must always be so when the seasons have been disarranged by drought and tempestuous rains, as they were prior to, and after the famine.

The deaths registered under this head, while not so numerous as in 1877, were much higher than the average.

Altogether 374,443 deaths were registered, of which 198,573 were males and 175,870 females. The fever mortality to the whole population was in the ratio of 12·8 per mille, the average ratio of five years before the famine being 7·6. The ratio of fever mortality was unusually high in Nellore (21·5), Madura (15·1), Kurnool (35·7), Cuddapah (32·9), Bellary (15·3), North Arcot (13·3), and South Canara (18·9). In Tinnevelly also the rate was much higher than usual, it being 6·6 per mille against 4·3 per mille, the average of former years.

94. The great fatality of fever in districts which had been affected by famine, and in which the food difficulty continued through a great part of the year, is a fact that cannot be lost sight of in connection with famine history. Similar results have been shown in regard to fever and food scarcity in Calcutta by Dr. Payne, and in the North-Western Provinces and Punjab.

95. I have not been able to ascertain any facts to show that the type of fever causing undue mortality in Southern India has been unusual, or differing in any essential particulars from the ordinary miasmatic fever. The end of the year 1877 was noticeable for violent rain and floods over a great part of Southern India. Madura and Tinnevelly which suffered excessively from these floods have suffered also unduly from fever, and Bellary, Cuddapah, and Kurnool experienced heavier rain than usual in the south-west monsoon season, which rain was accompanied by an accession of fever mortality.

96. But the condition of the poor in those districts was such that they easily fell victims to an enervating disease like ordinary malarious fever.

Digitized by Google

97. Officers of the Medical Establishment have been on the watch for the evidence of unusual types of fever, but no relapsing or typhus fever has been noticed. There was unquestionably a good deal of low fever of a typhoid character noticed in 1878 in the Madras hospitals, but such cases were most frequently observed in persons of European or mixed race, and did not appear to be specially connected with poverty or privation.

98. The facts in regard to the fever mortality would seem to point to the conclusion that the fevers causing death were influenced by seasonal causes. In January 1878 while the famine sufferers were still numerous, 54,368 deaths were registered from fevers; in May with continued dry hot weather the fever deaths fell to 21,695; from July with the setting in of the rains the mortality rose again to 26,429, and this increase went on steadily until December, when 39,364 deaths were registered. Fever mortality in Southern India as a whole is always the lowest in the hot, dry months of April and May.

BOWEL DISEASES.

99. There has been a great decrease in the mortality from bowel diseases as compared with the results of 1877. The total number of registered deaths under this head was 48,083 (males 25,955, females 22,128). The death-rate under this particular form of registration was 1·6 per mille, against the mean of 1·3 per mille in the five years ending 1876. The highest ratio of deaths from bowel diseases was registered in Madras, 11·6 per mille against an average of 5 per mille. In Kurnool, Nilgiris and South Canara also the ratios were higher than usual. In January 1878 there were registered 7,989 deaths from bowel diseases; these numbers fell to 2,867 in May, and then rose again, especially in the famine districts, which about this time experienced a second wave of distress. The numbers reached 4,643 in September, and in December had fallen to 2,666.

INJURIES.

100. The deaths registered as the result of violence were 15,007 (males 7,780, females 7,227). The numbers are not so high as in 1877 but in excess of the average of former years, as will appear from the following table :—

Years.	Suicides.	Wounding.	Accidents.	Snake-bite and killed by Wild Beasts.	Total.
1866	623	...	6,216	2,208	9,047
1867	615	...	5,853	2,145	8,613
1868	602	...	6,007	2,633	9,242
1869	694	...	6,057	2,559	9,310
1870	1,438	...	8,158	2,729	12,325
1871	2,370	1,093	8,473	3,387	15,323
1872	2,366	944	8,724	3,116	15,150
1873	2,077	918	8,267	2,989	14,251
1874	1,876	828	7,762	2,599	13,065
1875	1,811	880	7,177	2,553	12,421
1876	1,715	896	6,187	2,377	11,175
1877	2,575	1,372	10,425	2,088	16,460
1878	2,464	1,230	9,324	1,989	15,007

Suicides.

101. The number of suicides was 2,464; males 1,142, females 1,322. These numbers are higher than the average, but not so much so as in 1877.

Snake-bite and wild beasts.

102. The deaths registered under this head are fewer than in any year of registration. The sexes were males 1,279, females 710; of the 1,989 deaths 1,744 are said to be from "snake-bite," and 245 from "wild beasts."

Digitized by Google

SECTION III.

GENERAL HISTORY OF VACCINATION.

103. A change has been made in respect to the time of closing the vaccination statistics. Formerly all these statistics were rendered for the calendar year, but in 1870 a change was made to the official year. As the returns for the official year cannot well be collected, checked, and tabulated until two or three months after the 31st March, it follows that the preparation and submission of the general sanitary report relating to the calendar year is delayed.

104. It has frequently been laid down as a rule that all vital statistics should refer to calendar, not official years, and consequently the sanction of Government to resume the calendar period not only permits of greater promptness in the submission of the sanitary report, but brings the vaccine statistics into harmony with other vital statistics.

105. In 1878 the amount of vaccine work, as compared with that effected in 1877, fell off to a considerable extent. Famine camps had been thinned of their inmates or closed, and the opportunity of vaccinating the people in these places was wanting. The famine however had been disastrous to the younger children, and had caused a very serious reduction in the birth-rate, so that it was not to be expected that the figures of 1877 and 1878 would compare to the advantage of the latter.

106. Nevertheless during the year 1878 there were performed 515,840 primary vaccinations, and although these numbers compare unfavorably with those of the exceptional famine season, they are considerably in excess of the total annual operations in former years, as will be seen from a reference to the figures in the margin.

1873-74	...	363,399
1874-75	...	428,667
1875-76	...	383,067
1876-77	...	478,727
1877-78	...	776,705
1878	...	515,840

107. In the last nine months of 1878, which months include the new work not entered in the returns of the official year 1877-78, the total of vaccine operations was 355,091. It has been thought best however to deal with the results for the whole of the calendar year rather than for the broken period of nine months.

108. In the Madras Presidency vaccination is carried on in all districts throughout the year, except in the great heats of May and June when the lymph sometimes fails. In the violent rains of the south-west monsoon on the western coast vaccination is carried on with difficulty, and the vacation season which never extends beyond a month or six weeks has to be arranged in reference to peculiarities of climate. In the vacation time the Vaccinators are required to keep up a supply of lymph in their head-quarter stations, so as to be able to begin work on a larger scale when the season becomes favorable.

109. The vaccine staff in 1878 was as follows:—

1	Superintendent of Vaccination and Deputy Sanitary Commissioner.	
31	Deputy Inspectors	1st class.
7	do.	2nd "
212	Vaccinators	1st "
375	do.	2nd "
105	Pupils on probation.	

110. In regard to the class of Deputy Inspectors a favorable report of their qualifications and zeal, as a body, cannot be made. The salaries allotted to the officers of this grade are high enough, in reference to other spheres of Government

Digitized by Google

service, to secure an intelligent class of men, but in the Vaccine Department fairly good salaries have not, I am constrained to add, secured in all cases efficient servants.

111. I have been anxious to employ these officers, in accordance with the view of the Secretary of State for India, not only in the supervision of Vaccinators, but in inspecting and reporting on the sanitary condition of the villages they visit on vaccination tours. A form of monthly report has been adopted, in which the Deputy Inspectors are required to report not only the results of village inspection in regard to vaccination but the condition of birth and death registration, water-supply, cleanliness of villages, and prevalence of disease. This form of report in fact is a diary of the inspection work done. One copy is sent to the Inspector of Vaccination, and another copy to the President of the Local Fund Circle, and in this way it was hoped that glaring sanitary defects might be brought promptly to the notice of local authorities.

112. The practice was introduced only in November 1878, but the results were at first not satisfactory. The returns were often perfunctorily filled in, and for the most part the information given showed neither intelligence nor care on the part of the reporters. The reports however are gradually improving in quality, and with a few months more of practice in noting sanitary defects, I hope they may be of use to the local authorities in keeping the villages in better order.

113. In furtherance of the notion of making Deputy Inspectors of Vaccination general Sanitary Inspectors also, I requested the Inspector of Vaccination to issue a circular to them stating that in May or June of 1879, they would be examined as to their knowledge of certain elementary text-books of hygiene. Owing to the defective knowledge of the Deputy Inspectors, as shown by their monthly reports, I have thought it advisable to defer the examination test of their qualifications for another six months, and notice has been issued accordingly. Some of the present Deputy Inspectors will, I am sure, be able to learn enough of the general principles of hygiene to make efficient inspectors. Others, and probably the majority, from defective preliminary education, will not come up to the very moderate standard desired.

A beginning has been made, but with the material at hand progress must be very slow.

114. Some dissatisfaction is caused among Deputy Inspectors of Vaccination by the variable action of Local Fund Boards in respect to travelling allowances. In some districts travelling batta is granted to Deputy Inspectors and in others it is withheld. I have represented to the revenue authorities that in my opinion travelling batta should be given in all circles of inspection on defined rules and principles. It is absurd to expect that an officer whose area of supervision extends over 3 or 4,000 square miles, can perform his duties with comfort and efficiency, without help in regard to his actual travelling expenses.

115. The tendency with all these inspecting officers is to stay too much at head-quarters and to visit places that are easy of approach. What is wanted is regular and systematic visitation of all parts of a district, and this should be encouraged by the grant of batta or allowance for travelling when more than ten miles away from head-quarters, and the rule in regard to travelling allowances should be general, and not left to the caprice of Local Fund Boards. The new form of monthly report introduces a check over the Deputy Inspectors as to their actual village inspections and travelling, and I hope that the work will gradually improve.

116. *Vaccinators.*—The actual vaccine operators are exclusively the servants of the Local Fund authorities and Municipalities. They are to a large extent an uneducated class of men, and only a very small proportion of them are fitted for promotion to the Deputy Inspector's grade. During the year efforts have been made to improve the arrangements for the local supply of Vaccinators.

117. Most of the Local Boards have provided for the training of two or three probationers to fill vacancies, and if care be taken to select intelligent and respectable lads for this service, the higher ranks of the Vaccine Department will in due time be easily filled; but if no care is taken in the selection of candidates, it

Digitized by Google

will be certainly necessary to go outside the department for candidates for the inspecting grade. During 1878 the work was a good deal hindered by sickness of Vaccinators and absentees, and frequently when a man fell sick there was no one at hand to take up his work.

118. The following table shows the agency by which the vaccine operations were carried out:—

	Numbers vaccinated.
Vaccine circles and districts	411,021
Private Vaccinators	160
Private Estate Vaccinators	5,690
Medical Subordinates	21,386
Municipalities (including Madras)	82,553
Civil Dispensaries	397
Railway Apothecaries	...
	521,760

119. There was a larger falling off in the town than in the district work as compared with 1877, and the difference is due to the extraordinary numbers vaccinated in Madras during the famine year when small-pox was so prevalent and fatal.

120. Vaccination by private operators is apparently falling off.

121. Under the head "Vaccination in Civil Dispensaries" the results for this Presidency are almost *nil*. The only returns of this nature are from Cuddalore, where 397 operations are returned. There are a large number of civil dispensaries scattered over this Presidency, and every year the Local Fund Boards are extending the number. The Medical Officers appointed to the charge of these branch dispensaries are not overburdened with work, and there is not the slightest reason why they should not keep up vaccination amongst the people in their immediate neighbourhood.

122. All the expenses of these civil dispensaries are defrayed by the Local Fund Boards or Municipalities, and it would be an obvious economy of local funds to require that each medical superintendent of a dispensary should, as a part of his duty, have a regular day once a week for vaccination, and use his best endeavours to extend vaccination in his immediate neighbourhood. This is done to a large extent in Bengal, in Assam, and Bombay, and formerly in Madras, and I can see no reason why the practice should be allowed to drop. The work is so great and the laborers are so few, that we cannot afford to dispense with the help of the Civil Medical Officers who are paid for their services out of local funds, and I strongly advise that all these officers be required to assist in vaccination as a regular part of their duties. It might be advisable perhaps to encourage them in prosecuting vaccination by granting an allowance of 2 annas per head for each successful case. Government, in Order No. 1526, of 17th October 1878, on the vaccination report, has been pleased to express an opinion that vaccination should be regularly practised at the civil dispensaries, and I have requested the Surgeon-General, Indian Medical Department, to make known the wishes of Government in regard to the matter. During the year the lymph in use was generally good. An attempt was made to get out from England a supply of calf animal-lymph, but it was inert on arrival. Where lymph has failed or deteriorated the result has been due to the carelessness of operators, either in taking it at the wrong time or in careless preservation. Nearly all the failures in vaccination result from the use of lymph preserved in tubes or glass plates. My own experience of vaccination in the country goes to show that, when lymph fresh from the arm is used, failures are very few, and all Local Boards and Municipalities should encourage arm-to-arm vaccination, by liberal and judicious grants of batta to mothers whose children are used to convey lymph from village to village. In some districts no expenditure took place for this object, and the fact shows that vaccination must have been carried on with great difficulty or oppression to the people.

123. The number of children under one year of age vaccinated in 1878 was only 45,450; in the same period the number of births registered in the Presidency was 348,657.

Digitized by Google

The condition of the infant-population as to vaccination is generally regarded as the best test of the degree of protection enjoyed by the population, and judged by this test, vaccination cannot be regarded as at all satisfactory.

There was a considerable falling off in numbers of children under one year of age operated on, and the explanation given is that so few children were born; but the figures above given show that eight times more children were born than were vaccinated.

It seems quite clear owing to objections of the people, and perhaps also to carelessness of the Vaccinators in neglecting to urge the importance of infantile vaccination, that the young are but badly protected.

The proportion of children between one and six years vaccinated to population shows better results, and practically, owing to the prejudices against infantile vaccination, this is the section of population to which we must always look for greatest progress in vaccination.

124. The cost of vaccination depends greatly on the facilities of access to the population. In districts where the people are thinly spread the outturn of work is necessarily smaller than in districts where the people live in large villages or towns. The cost of vaccination is always relatively high in Jeypore Hills, in Kurnool, Cuddapah, &c. In regard to Kurnool and Cuddapah the attention of the Local Fund Boards has been directed to the high average of expenditure.

Excluding the work done by medical subordinates, it is found that the average rate per head for each case of successful vaccination was 5 annas 6 pie, or 1 anna 6 pie higher than the averages of the former year. The explanation of the enhanced cost per case is of course that the establishment of Vaccinators did more work in the famine year than in ordinary seasons, and thus reduced the cost per case.

The following table shows the cost of the department and amounts paid out of Imperial, Provincial, Local, Municipal, or private funds. The total charges in the past year were Rupees 1,48,579-13-8, and the reduction was principally due to the smaller employment of temporary Vaccinators, and to the salary of the recently appointed Inspector of Vaccination being less than that of Dr. Shortt:—

	RS.	A.	P.
Imperial Funds	608	2	3
Provincial	19,718	10	10
Local	1,11,103	0	0
Municipal	15,494	0	5
Contribution from Zemindaries and other estate owners.	1,656	0	2
Total ...	1,48,579	13	8

125. INSPECTION.—During the year Mr. Laing, the Inspector of Vaccination and Deputy Sanitary Commissioner, visited the districts of Ganjam, Vizagapatam, Godavari, Kistna, Nellore, Chingleput, Malabar, and South Canara, and his remarks on the state of vaccination in those districts will be found in his report. During the same period I inspected the vaccination work in Coimbatore, Nilgiri Hills, Salem, North Arcot, and Bangalore. By the present arrangement of duties Mr. Laing and myself hope to visit all the principal Local Fund Circles and Municipalities once a year at least. Already in the past cold season the districts of Chingleput, South Arcot, Tanjore, Tinnevelly, and Madura have been visited by myself, and Bellary, Kurnool, Cuddapah and North Arcot by Mr. Laing.

It may be mentioned here that the Bombay Presidency, with only 16 millions of population, has seven Superintendents of Vaccination, besides the Sanitary Commissioner, who are Commissioned Medical Officers, while the Madras Presidency, with 30 millions of population, has only one officer of this description in addition to the Sanitary Commissioner.

126. It is undoubtedly the case that without frequent and careful inspection, no great amount of improvement can be expected either in vaccination or general sanitary progress. Under the recent orders as to limitation of expenditure in the Civil branches of administration, I am unable to ask for the adequate assistance needed for these duties, but in any future reorganization of the Medical Services, I trust that the needs of the public health department may not be forgotten.

Digitized by Google

127. The time has come when some reply may be given to the question, what good has been done by the vaccination agencies working in India during the earlier years of this century?

128. We have not been able to eradicate small-pox nor have we been very successful in modifying the progress of those epidemic outbreaks which occasionally occur, and for this reason, that our operations have never yet extended to the population as a whole, but only to individual members thereof. The mortality from small-pox in our armies and jails shows that as regards individuals the protection afforded by vaccination in India is equal to that in any other country. In our schools for youths from 6 to 15, I generally find that from one-third to two-thirds of the pupils present bear marks of successful vaccination, while more than half the remainder are more or less pitted with small-pox. The proportion of vaccinated is less in remote villages.

129. Already I believe that a steady improvement has occurred in the proportion of vaccinated in the population. I remember when I was a Civil Surgeon, more than twenty years ago, that the proportion of prisoners in jail marked by small-pox was never less than 80 per cent. It is nothing like this now, and I very commonly notice grown men and women in the streets with good vaccine marks, a thing which was rarely seen twenty years ago.

130. In our village system of administration it is a matter of the greatest importance to carry the village authorities with us in any work for the improvement of the public health. In some districts, notably in Coimbatore, where vaccination attains the highest numbers, the village authorities have been brought to render useful aid. In Tanjore, too, I had lately occasion to notice that the Collector, Mr. Forster Webster, by his personal influence had caused more than 2,000 persons to be vaccinated in the small town of Vellum where his office establishment reside, and it seems only reasonable to infer that some personal interest in the subject on the part of the superior officers of the Revenue establishment would produce in time similar results in districts like Kurnool and Cuddapah, where vaccination is notoriously backward.

131. I was lately much pleased to see the Brahmin community in Combaconum taking an intelligent interest in vaccination, and in going through the town I was much struck by the large number of children of this class successfully vaccinated. The Brahmins are certainly the most intellectual of the native population. They avail themselves freely of the educational means placed in their way, and this section of the people at any rate, in one of their chief educational centres, has learnt the practical benefits of vaccination.

132. Government will naturally wish to know my own experience in regard to the benefits of vaccination to the individual. I have inspected many thousands of persons, and especially with reference to the protective powers of vaccination.

133. I have never seen a child pitted with small-pox in whom the vaccine cicatrices were well marked, but in the past year I have seen perhaps half a dozen children with indifferent vaccine marks and small-pox pits. In some of these from questioning the people, I came to the conclusion that the children had been vaccinated after they had taken small-pox, and that the vaccination had been a failure in consequence. In my last year's report I gave a remarkable instance of a well vaccinated child having been kept for three weeks in a small-pox hospital without suffering any ill effects, and practically this has everywhere been my experience, that efficient vaccination is an undoubted protection to the individual. And if every individual of the community could be subjected to vaccination we might safely hope to banish small-pox epidemics.

134. Inspection shows that there is still too much bad and indifferent vaccination, and in such cases we must expect that small-pox will not pass by persons so dubiously protected, but the more I see of good vaccination, the more impressed am I with its benefits.

135. I rejoice, therefore, in receiving orders from Government under date 22nd April 1879, No. 2769, F.D., to prepare, in communication with the Advocate-General, a draft bill, to enable Municipalities and other areas where the machinery for

Digitized by Google

efficient vaccination exists, to arrange for the systematic vaccination of the people. Armed with the necessary legal powers it will be the fault of local authorities if epidemics of small-pox are permitted to destroy the people.

136. I have to express my obligations to Surgeon J. Laing, Inspector of Vaccination and Deputy Sanitary Commissioner, for his zealous labors in revising the instructions to Vaccinators, and generally for carrying out the duties entrusted to him.

SECTION IV.

MILITARY.

REMARKS ON THE SICKNESS, &c., OF THE ARMY AND SANITARY WORKS.

137. The sections of the annual report devoted to the health statistics of European and Native troops having been discontinued by order of the Government of India, it is necessary that a brief review of the main facts in connection with the sanitary condition of the troops in 1878, should be entered upon, before considering the individual military stations.

EUROPEAN TROOPS.

Strength, sickness, and mortality.

138. The mean strength of the British troops occupying stations within the Madras Command was 10,528, including those on the march, and the casualties amongst this body, of which any record appears in the weekly medical returns, were 233. The death-rate to strength (including deaths occurring out of hospital) was 22·1 per mille, a rate higher than has been known in this Presidency since 1869.

139. The hospital admissions also have been more numerous than in any year since 1870.

140. The following table compares the ratios of admissions, daily sick, mortality, and invaliding in the European forces for a series of years.

141. The facts show that 1878 as regards European troops was a sickly year. Sickness and mortality were greater than usual at Bellary, Cannanore, Calicut, Rangoon, Trichinopoly, Tonghoo and Ramandroog.

Years.	Admitted.	Daily Sick.	Died in and out of Hospital.	Invalided.	
				Change of Climate.	For Discharge.
1860	1448·5	59·9	20·9	49·6	8·1
1861	1254·4	57·6	14·8	22·2	13·3
1862	1295·4	62·1	18·5	18·7	9·5
1863	1254·6	55·7	19·4	28·5	11·5
1864	1538·4	65·5	20·5	51·0	14·0
1865	1450·2	62·7	23·3	33·9	4·9
1866	1490·5	69·1	22·2	46·1	10·5
1867	1386·8	61·8	19·9	44·1	10·5
1868	1399·4	62·4	20·6	52·8	9·5
1869	1328·6	62·1	23·2	47·4	8·2
1870	1481·5	63·6	19·7	70·4	6·6
1871	1211·5	56·2	19·1	29·7	12·5
1872	1352·3	59·7	19·2	26·8	11·2
1873	1270·8	59·3	18·5	50·6	12·7
1874	1141·2	57·6	13·4	29·5	8·3
1875	1096·3	56·9	14·8	60·8	15·5
1876	1132·9	55·2	16·1	31·9	10·9
1877	1172·2	58·7	17·2	36·0	10·2
1878	1379·7	65·8	22·1	36·6	9·1

Digitized by Google

PRINCIPAL DISEASES.

Small-pox.

142. Ten cases of small-pox and four deaths occurred at Kamptee, but no cases were returned from any other station.

Fevers.

143. The medical returns of the European Army, in common with the registration returns of the districts, show a greatly enhanced ratio of febrile disease. The total of treated for fevers was higher than in any year since 1870. The admissions for "intermittent fevers" were double those of the former year and about three times those of 1876. The admissions were also much more numerous under the head of "continued" and "remittent" fevers. The number of cases of typhoid or enteric fever had greatly decreased, but this result appears to have been due to the published criticisms of the Surgeon-General, British Medical Service, and probably to more careful discrimination and diagnosis in the cases so entered.

144. The practical fact remains that as regards the whole group of febrile disorders there was a marked rise in numbers to the extent of more than one-third above the average. While the number of fever admissions has increased by one-third, the mortality has not risen in the same proportion. There were 26 deaths from fevers of all kinds in 1876, 24 in 1877, and 26 in 1878.

145. It is worth notice in this place that the fevers classified as intermittent appear to be but rarely fatal in the European Army. In the eleven years ending 1878 I find a total of 14,449 admissions for intermittent fever with but one death.

146. It is no part of my purpose to enter into any discussion regarding the classification of fevers in the army returns. The subject of the relation of the malarious and continued fevers requires much more investigation than it has yet had, and Surgeon-General Gordon's observations are valuable in directing attention to the necessity of greater care in the classification of Indian fevers. The following table will indicate the need not only of improvement in classification, but of bearing in mind the great truth that febrile diseases, under whatever name registered, are to a great extent influenced by general seasonal peculiarities as to moisture, rainfall, &c., irrespective of the local conditions under which the troops may be living.

Table showing Admissions and Deaths from Fevers compared with former years.

Years.	Typhoid Fever.		Continued Fever.		Remittent Fever.		Intermittent Fever.		Total Fevers.	
	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.
1868	9	6	462	3	168	4	1,259	1	1,898	14
1869	41	11	850	3	225	11	1,065	...	2,181	25
1870	44	14	737	1	51	7	3,989	...	4,821	22
1871	45	15	686	4	143	6	947	...	1,821	25
1872	79	26	1,499	5	79	3	1,323	...	2,980	34
1873	52	10	1,114	3	89	4	1,417	...	2,672	17
1874	34	12	1,321	1	43	...	710	...	2,108	13
1875	23	7	1,315	2	37	2	802	...	2,177	11
1876	51	21	1,508	4	33	1	586	...	2,178	26
1877	64	22	1,444	1	15	1	758	...	2,281	24
1878	7	5	1,940	13	180	8	1,593	...	3,720	26

Epidemic Cholera.

147. The returns showed that this disease prevailed in Bellary, Cannanore, Kamptee, Maliyapuram, Poonamallee, Rangoon, Secunderabad, Trichinopoly, Thayetmyo, and Tonghoo. Altogether 43 cases and 28 deaths are recorded; a larger mortality than usual, although cholera was less prevalent over the country at large. The largest mortality occurred at Secunderabad and Kamptee.

Apoplexy and Sunstroke.

148. There was a higher mortality under these headings than in any of the past ten years, 28 deaths against an average of 11.

Digitized by Google

149. Dysentery and bowel diseases were more fatal than usual, and violent or accidental deaths were somewhat below the average.

Venereal Diseases.	
1872	1,776
1873	1,683
1874	2,035
1875	2,152
1876	1,906
1877	2,450
1878	2,562

150. It is not very satisfactory to find that the hospital admissions for this class of ailments show no tendency to diminution, notwithstanding all the trouble and expense incurred on special establishments for the protection of the military. In the margin is given the total admissions for each year since 1872, and it will be observed that the numbers in 1877 and 1878 are higher than in any of the former years.

151. These results are attributable not to any special laxity in the supervision of the public women of military stations, but to the complete disarrangement of family life in the lower classes of Natives, caused by the famine, and to the great increase in promiscuous intercourse brought about by that calamity.

152. I have seen most of the districts affected by famine, and I can truly say that a fearful legacy has fallen on the survivors, in the shape of syphilitic diseases, which have spread far and wide amongst the Native communities, and the end of which misery has not yet been seen.

153. The number of public women on the registers in military stations has increased considerably in 1878, and the testimony of Medical Officers in charge of Lock Hospitals goes to show that a very large proportion of the new admissions were women suffering from actual disease. The famine camps and civil hospitals all over the country tell the same tale. The Medical Officer of the Bangalore Lock Hospital gives a significant hint as to the prevalence of this class of disorders in the general community. A lady of the station wanted a wet nurse. Of five candidates for the office two were found to be suffering from syphilis, and three from gonorrhœa ! From Cannanore we learn that famine migrants from Mysore brought syphilis with them, and extended it amongst European and Native troops.

154. I have a very distinct impression that the lower classes of the Native community have, in the last two years, been greater sufferers from venereal affections than the regular prostitutes settled in military cantonments. Statistics on such a subject cannot, of course, be produced, but the number of syphilitic cases transferred to civil hospitals on the closing of famine-relief camps was most suggestive as to the condition of the homeless and houseless poor. We have seen, in fact, during the last two years syphilitic diseases affecting the famine sufferers with all the virulence of an epidemic, and a corresponding increase in venereal disorders has been observed amongst the troops at our military stations in Southern India. The military stations out of the way of famine influences have not shown the same tendency to increase of syphilitic diseases.

155. The following table gives the particulars of venereal admissions of troops and Lock Hospitals in 1878 :—

Digitized by Google

Table showing the Relative Prevalence of Primary, Secondary and Gonorrhœal Diseases amongst the British Troops and Registered Prostitutes of the Military Stations in the Madras Presidency during 1878.

Stations.	Troops.									Prostitutes.								
		Primary Syphilis.		Secondary Syphilis.		Gonorrhœal Diseases.		Total Venereal Diseases.			Primary Syphilis.		Secondary Syphilis.		Gonorrhœal Diseases.		Total Venereal Diseases.	
	Strength.	Admissions.	Ratio per 1,000 of Strength.	Admissions.	Ratio per 1,000 of Strength.	Admissions.	Ratio per 1,000 of Strength.	Admissions.	Ratio per 1,000 of Strength.	Strength.	Admissions.	Ratio per 1,000 of Strength.	Admissions.	Ratio per 1,000 of Strength.	Admissions.	Ratio per 1,000 of Strength.	Admissions.	Ratio per 1,000 of Strength.
Bangalore	1,610	220	136·64	36	22·36	226	140·37	482	299·37	109	149	1367·0	4	36·7	552	5064·2	705	6467·9
Bellary	869	171	196·78	23	26·47	86	98·96	280	322·21	96	134	1395·8	6	62·5	238	2479·2	378	3937·5
Cannanore	640	38	59·37	12	18·75	58	90·62	108	168·74	47	15	319·1	2	42·6	139	2957·4	156	3319·1
Calicut	98	6	61·22	3	30·61	27	275·51	36	367·34	No Lock Hospital.								
Kamptee	845	102	120·71	18	21·30	83	98·22	203	240·23	65	59	907·7	3	46·1	65	1000·0	127	1953·8
Madras	590	95	161·02	9	15·25	151	255·93	255	432·20	1,129	625	553·6	55	48·7	373	330·4	1,053	932·7
Maliyapuram	95	...	...	...	...	...	...	...	...	No Lock Hospital.								
Poonamallee	159	5	31·44	6	37·72	10	62·89	21	132·07	The women of these stations are sent to St. Thomas' Mount.								
Pallavaram	26	...	...	...	...	...	...	...	...									
Port Blair	130	1	7·69	4	30·77	2	15·38	7	53·84	No Lock Hospital.								
Ramandroog	30	1	33·33	...	...	...	...	1	33·33									
Rangoon	750	50	66·66	4	5·34	54	72·00	108	144·00	464	562	1211·2	175	377·1	204	439·7	941	2028·0
St. Thomas' Mount ...	313	58	185·31	9	28·75	44	140·57	111	354·63	67	66	985·1	7	104·5	110	1641·8	183	2731·4
Secunderabad ...	2,471	294	118·98	45	18·21	327	132·33	666	269·52	254	476	1874·0	3	11·8	171	673·2	650	2559·0
Seetabuldee	48	9	187·50	...	...	13	270·83	22	458·33	20	5	250·0	...	...	29	1450·0	34	1700·0
Trichinopoly	269	34	126·39	11	40·89	45	167·28	90	334·56	70	116	1657·1	6	85·7	183	2614·3	305	4357·1
Thayetmyo	618	23	37·21	5	8·09	26	42·07	54	87·37	25	13	520·0	15	600·0	31	1240·0	59	2360·0
Tonghoo	398	26	65·33	11	27·64	22	55·27	59	148·24	15	9	600·0	3	200·0	8	533·3	20	1333·3
Wellington	407	21	51·59	18	44·23	20	49·14	59	144·96	41	29	707·3	...	...	79	1926·8	108	2634·1
Total ...	10,366	1,154	111·32	214	20·64	1,194	115·18	2,562	247·14	2,402	2,258	940·1	279	116·1	2,182	908·4	4,719	1964·6

156. It is obvious that a special detective agency intended for a small section of the female population of military cantonments must be inoperative, when special causes have brought a large section of the females of the laboring classes into the category of public women. Any one taking a comprehensive survey of the facts of the last two years, must admit that the causes tending to the spread of venereal diseases were beyond the reach of any special department dealing with the control of habitual prostitutes. These causes are now drawing to a close. Food is not deficient in the country, the survivors of the famine have enough to eat, and are resuming their normal occupations, and the bonds of family life are being reunited. But I am quite certain of this, that the effects of the famine, in aiding the uncontrolled ravages of syphilitic diseases amongst the civil population, will be evident for many a long day to come.

WOMEN.

Strength, sickness and mortality.

157. The average strength of soldiers' wives in the Madras Command was 1,293, the admissions into hospital 1,556, and deaths 35.

The death-rate to strength was 27·0 per mille, a ratio considerably higher than the average of former years. At Bellary the women suffered a good deal from fevers, and 3 fatal cases of cholera occurred at this station. At Secunderabad also 2 fatal cases of cholera occurred amongst the women. There were 276 cases of child-birth or abortion.

Digitized by Google

Table showing the Admissions and Deaths among Women belonging to the European Corps stationed in the Madras Presidency during the Year 1878.

	Bangalore.	Bellary.	Cannanore.	Calicut.	Kamptee.	Madras.	Maliyapuram.	Poonamallee.	Pallavaram.	Port Blair.	Ramandroog.	Rangoon.	Saint Thomas' Mount.	Secunderabad.	Trichinopoly.	Thayetmyo.	Tonghoo.	Wellington.	Total.
Strength	237	98	98	2	119	81	5	31	1	1	4	85	39	284	25	60	40	83	1,293
Admitted	168	164	87	1	170	170	1	41	...	...	20	119	35	328	26	81	26	119	1,556
Died in hospital	7	7	1	...	4	1	...	...	...	...	...	...	1	6	3	2	1	2	35
Do. out of do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Daily sick	5·51	6·04	2·98	0·01	4·39	5·49	0·03	2·14	...	...	0·77	3·20	0·94	10·98	0·90	3·13	0·89	3·28	49·67

Diseases.

Diseases	Bangalore A.	Bangalore D.	Bellary A.	Bellary D.	Cannanore A.	Cannanore D.	Calicut A.	Calicut D.	Kamptee A.	Kamptee D.	Madras A.	Madras D.	Maliyapuram A.	Maliyapuram D.	Poonamallee A.	Poonamallee D.	Pallavaram A.	Pallavaram D.	Port Blair A.	Port Blair D.
Small-pox	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...
Chicken-pox	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Typhoid fever	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dengue do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued do.	22	...	19	1	14	...	...	...	16	1	5	...	...	...	4	...	...	...	...	...
Intermittent do.	4	...	43	...	1	...	...	...	18	...	6	...	...	...	...	...	...	...	...	...
Remittent do.	...	...	30	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Cholera	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheumatism	3	...	...	...	...	...	...	...	1	...	3	...	...	...	1	...	...	...	...	...
Phthisis pulmonalis	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other lung diseases	1	...	...	...	5	...	...	...	11	...	3	...	...	...	1	...	...	...	...	...
Atrophy and anæmia	...	...	2	...	...	...	...	...	1	...	22	...	...	...	...	...	...	...	...	...
Ophthalmia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other eye diseases	4	...	2	...	...	...	...	...	10	...	...	...	...	...	2	...	...	...	...	...
Disease of the heart	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Hysteria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diseases of the brain and nervous system	4	1	1	1	3	...	...	...	1	...	2	...	...	...	...	...	...	...	...	...
Dysentery	6	1	4	...	4	...	...	...	6	...	2	...	...	...	1	...	...	...	...	...
Diarrhœa	14	1	2	...	...	...	...	...	6	...	3	...	...	...	...	...	...	...	...	...
Disease of the liver	10	1	1	...	1	...	...	...	2	...	4	...	...	...	2	...	...	...	...	...
Abortion	2	...	1	...	1	...	...	...	2	...	5	...	...	...	1	...	...	...	...	...
Child-birth	81	1	18	...	20	...	1	...	28	...	23	...	1	...	4	...	...	...	...	...
Puerperal diseases	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other diseases	64	2	37	...	37	1	...	...	62	3	91	1	...	...	25	...	...	...	...	...
Total ...	168	7	164	7	87	1	1	...	170	4	170	1	1	...	41	...	...	...	...	...
Ratio per 1,000 of Strength	708·8	29·5	1673·4	71·4	887·7	10·2	500·0	...	1428·6	33·6	2098·7	12·3	200·0	...	1322·6	...	...	...	...	...

Diseases	Ramandroog A.	Ramandroog D.	Rangoon A.	Rangoon D.	Saint Thomas' Mount A.	Saint Thomas' Mount D.	Secunderabad A.	Secunderabad D.	Trichinopoly A.	Trichinopoly D.	Thayetmyo A.	Thayetmyo D.	Tonghoo A.	Tonghoo D.	Wellington A.	Wellington D.	Total A.	Total D.
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
Typhoid fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Dengue do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued do.	4	...	9	...	5	...	51	...	5	...	3	1	1	...	9	...	167	3
Intermittent do.	9	...	...	...	...	...	25	...	1	...	7	...	2	...	7	...	123	...
Remittent do.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	1	33	2
Cholera	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	5	5
Rheumatism	...	...	2	...	1	...	2	...	...	...	...	...	...	...	3	...	16	...
Phthisis pulmonalis	...	...	...	...	...	...	11	3	...	...	...	...	...	...	...	...	14	3
Other lung diseases	...	...	1	...	...	...	15	...	...	...	2	1	...	...	1	...	40	1
Atrophy and anæmia	...	...	1	...	...	...	2	...	...	...	...	...	...	...	...	...	28	...
Ophthalmia	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Other eye diseases	...	...	1	...	1	...	8	...	...	...	...	...	...	...	...	...	28	...
Disease of the heart	...	...	1	...	...	...	...	...	1	1	1	...	...	...	...	...	4	1
Hysteria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diseases of the brain and nervous system	...	...	1	...	2	...	3	...	2	1	2	...	...	...	2	...	23	3
Dysentery	...	...	4	...	...	1	19	...	...	...	1	...	1	...	5	1	58	3
Diarrhœa	2	...	6	...	3	...	14	1	2	...	7	...	2	1	5	...	66	3
Disease of the liver	...	...	2	...	...	...	1	...	...	...	1	...	...	...	1	...	25	1
Abortion	...	...	...	...	...	...	3	...	...	...	1	...	...	...	3	...	19	...
Child-birth	3	...	24	...	7	...	49	...	4	...	10	...	8	...	26	...	257	1
Puerperal diseases	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	2	1
Other diseases	2	...	67	...	16	...	121	...	11	...	46	...	12	...	56	...	647	7
Total ...	20	...	119	...	35	1	328	6	26	3	81	2	26	1	119	2	1,556	35
Ratio per 1,000 of Strength	5000·0	...	1400·0	...	897·4	25·6	1154·9	21·1	1040·0	120·0	1350·0	33·3	650·0	25·0	1433·7	24·1	1203·4	27·0

Digitized by Google

CHILDREN.

Strength, sickness and mortality.

158. The strength of children belonging to the European troops was 2,618, and the deaths in and out of hospital 190. The death-rate to strength was 72·6 per mille,—a higher ratio than has occurred since 1869.

The following table shows the chief diseases :—

Table showing the Admissions and Deaths among the Children belonging to the European Corps stationed in Madras Presidency during the Year 1878.

—	Bangalore.	Bellary.	Cannanore.	Calicut.	Kamptee.	Madras.	Maliyapuram.	Poonamallee.	Pallavaram.	Port Blair.	Ramandroog.	Rangoon.	Saint Thomas' Mount.	Secunderabad.	Trichinopoly.	Thayetmyo.	Tonghoo.	Wellington.	Total.
Strength	493	209	229	3	193	172	8	72	1	3	9	198	60	539	40	112	63	214	2,618
Admitted	247	225	99	1	194	206	...	63	...	1	21	140	35	498	25	77	16	106	1,954
Died in hospital	23	16	3	1	28	9	...	3	...	...	...	12	5	62	...	7	1	13	183
Do. out of do.	1	...	...	...	...	...	...	...	...	...	...	1	...	2	...	1	2	...	7
Daily sick	7·41	8·04	2·22	0·01	4·69	6·91	...	5·20	...	0·09	0·69	4·59	0·99	15·17	1·01	2·01	0·69	3·32	63·04

Diseases.	Bangalore. A.	D.	Bellary. A.	D.	Cannanore. A.	D.	Calicut. A.	D.	Kamptee. A.	D.	Madras. A.	D.	Maliyapuram. A.	D.	Poonamallee. A.	D.	Pallavaram. A.	D.
Small-pox	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chicken-pox	6	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Measles	...	...	...	...	...	...	...	...	25	...	68	2	...	...	1	...	...	...
Typhoid fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dengue do. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued do. ...	42	...	13	...	22	...	...	...	33	2	16	...	...	...	9	...	...	...
Intermittent do. ...	1	...	77	...	...	...	...	...	7	...	9	...	...	...	...	...	...	...
Remittent do. ...	...	...	14	...	...	...	...	...	3	1	5	1	...	...	...	...	...	...
Cholera	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...
Influenza	2	...	...	...	...	...	...	...	10	...	1	...	...	...	...	...	...	...
Pertussis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Atrophy and anæmia ...	...	...	...	...	1	...	...	...	...	...	4	...	...	...	...	...	...	...
Ophthalmia	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Other eye diseases ...	19	...	18	...	1	...	...	...	10	...	1	...	...	...	19	...	...	...
Convulsions	6	5	7	7	1	1	...	...	14	13	3	3	...	...	...	...	...	...
Diseases of the brain and nervous system.	1	...	4	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Dysentery	17	3	5	1	7	2	...		6	3	5	...	...	...	3	...	...	...
Diarrhœa	39	7	26	3	9	...	1	1	37	3	16	1	...	...	10	1	...	...
Teething	6	1	10	1	...	...	...	...	7	1	2	...	...	...	5	1	...	...
Tonsilitis	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Still-born	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Premature birth	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vermes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other diseases	106	6	50	3	57	...	...	...	40	5	73	2	...	...	16	1	...	...
Total ...	247	23	225	16	99	3	1	1	194	28	206	9	...	...	63	3	...	...
Ratio per 1,000 of Strength.	501·0	46·6	1075·5	76·5	432·3	13·1	333·3	333·3	1005·1	145·0	1197·6	52·3	...	...	875·0	41·6	...	...

Diseases.	Port Blair. A.	D.	Ramandroog. A.	D.	Rangoon. A.	D.	Saint Thomas' Mount. A.	D.	Secunderabad. A.	D.	Trichinopoly. A.	D.	Thayetmyo. A.	D.	Tonghoo. A.	D.	Wellington. A.	D.	Total. A.	D.
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	...	12	...
Measles	...	...	...	...	60	3	2	...	41	...	...	...	...	...	...	...	3	1	200	6
Typhoid fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dengue do. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued do. ...	...	...	1	...	18	1	...	...	90	...	6	...	10	...	1	...	18	1	279	4
Intermittent do. ...	...	...	6	...	...	...	...	...	22	...	3	...	11	...	...	...	4	...	140	...
Remittent do. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22	2
Cholera	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	4	...
Influenza	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13	...
Pertussis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Atrophy and anæmia ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	6	...
Ophthalmia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Other eye diseases ...	...	...	...	...	2	...	...	...	23	...	2	...	5	...	...	...	2	...	102	...
Convulsions	...	...	...	...	2	2	5	3	26	25	...	...	1	1	...	...	4	3	69	63
Diseases of the brain and nervous system.	1	...	...	...	...	...	...	...	4	2	...	...	1	1	...	...	1	...	13	4
Dysentery	...	...	1	...	6	...	2	...	42	4	...	...	2	...	1	...	9	1	106	14
Diarrhœa	...	...	9	...	14	3	14	...	62	5	5	...	7	2	1	...	7	3	257	29
Teething	...	...	1	...	3	1	2	1	30	8	2	...	9	...	3	...	...	...	80	14
Tonsilitis	...	...	...	...	...	...	...	...	7	1	...	...	...	...	...	...	...	...	8	1
Still-born	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Premature birth	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	2	2
Vermes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other diseases	...	...	3	...	34	2	10	1	139	16	7	...	29	3	10	1	56	4	630	44
Total ...	1	...	21	...	140	12	35	5	498	62	25	...	77	7	16	1	106	13	1,954	183
Ratio per 1,000 of Strength.	333·3	...	2333·3	...	707·0	60·6	583·3	83·3	923·9	115·0	625·0	...	687·5	62·5	253·9	15·8	495·3	60·7	746·3	69·9

Digitized by Google

159. The child mortality, as in former years, occurred chiefly during the first two years of life. Of the 190 deaths, 160 occurred in children under two years of age, principally from convulsions, bowel disorders and teething; 4 cases of cholera are entered in the returns but no death occurred.

Table showing the Mortality among the Children belonging to the European Corps for 1878.

—	Ages of Children.								Total.
	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	5 to 10.	10 to 15.	Above 15 years.	
Asphyxia by drowning	...	...	...	...	...	1	...	...	1
Bronchitis	11	1	1	...	...	...	...	...	13
Convulsions	44	14	1	2	1	1	...	...	63
Cyanosis	1	...	...	...	...	...	...	...	1
Collapse of lungs	1	...	...	...	...	...	...	...	1
Croup	1	1	1	...	...	...	...	...	3
Caries of spine	...	...	...	...	...	1	...	...	1
Dysentery	5	5	1	1	1	1	...	...	14
Diarrhœa	16	9	2	3	...	...	...	...	30
Debility, general	7	4	...	...	...	...	...	...	11
Epilepsy	...	...	...	...	...	1	...	...	1
Hepatic abscess	1	...	...	...	...	...	...	...	1
Hydrocephalus	...	2	...	...	...	...	...	...	2
Intestine impervious	1	...	...	...	...	...	...	...	1
Measles	1	1	1	1	...	2	...	...	6
Meningitis	1	...	...	...	...	...	...	...	1
Premature birth	2	...	...	...	...	...	...	...	2
Purpura	...	1	...	...	...	...	...	...	1
Remittent fever	1	...	...	...	...	1	...	...	2
Spasm of the glottis	1	...	...	...	...	...	...	...	1
Simple continued fever	1	1	1	...	...	1	...	...	4
Sunstroke	...	...	...	...	...	1	...	...	1
Teething	6	8	...	...	...	...	...	...	14
Tabes mesentrica	2	9	1	...	...	...	...	...	12
Tubercular meningitis	1	...	1	...	...	...	...	...	2
Tonsilitis	...	...	...	1	...	...	...	...	1
Total ...	104	56	10	8	2	10	...	...	190

NATIVE ARMY.

Strength, sickness and mortality.

160. According to the Adjutant-General's returns for the whole Native Army the strength on 1st January 1878 was 31,210, and the additions during the year by recruiting were 1,892. During the year the Native Army lost 2,593 men by invaliding, discharges and deaths, and the strength at the end of the year remained at 30,509.

161. The strength of the Native troops occupying stations within the Madras command was 25,496. The number of hospital admissions 20,239 and the deaths in and out of hospital 340.* These figures relate only to stations of the Madras command, and do not include troops or regiment serving out of the Presidency or marching.

162. The proportions of sickness, mortality and invaliding are contrasted in the following table with the results of previous years:—

—	Ratio per 1,000 of Strength.										
	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Admissions ...	707·7	702·5	630·6	693·9	1067·9	883·2	772·7	777·7	726·8	832·2	793·2
Daily sick ...	29·0	29·3	26·4	26·9	34·7	31·3	30·0	30·7	28·2	28·8	29·7
Deaths in hospital.	8·6	10·1	9·4	8·8	9·9	6·4	7.7	9·0	9·8	11·3	11·7
Do. out of do.	1·4	3·6	3·6	1·8	2·4	1·8	2·0	1·5	1·2	1·7	1·6
Invaliding† ...	16·4	24·5	25·6	23·3	28·4	30·8	33·5	39·3	37·1	30·5	52·6

* 72 other deaths occurred out of hospital among men on furlough and sick leave in their native villages, which were not shown in the weekly medical returns.
† Calculated on Adjutant-General's returns.

24

Digitized by Google

163. The mortality in the Native Army has been higher than usual, and this is scarcely to be wondered at when we consider that the year 1876 was one of dear food and general unhealthiness to the Native population. Cases of small-pox occurred in thirteen of the stations occupied by Native troops, and cholera in 16. The latter disease was most severe in Bellary, Secunderabad, Kamptee, Hoshungabad and Trichinopoly. A severe outbreak occurred in the 3rd Regiment N.I. at the end of the year while marching from Secunderabad through the Northern Division to Vizagapatam.

Principal causes of sickness and mortality.

164. Fevers caused nearly one-half of the admissions in the hospitals of the Native troops. Fevers were most prevalent in Bellary, French Rocks, Mercara, Port Blair, and Nicobar Islands, Secunderabad and Seetabuldee. The great bulk of the fevers were entered as intermittent (8,422), but 638 cases are returned as continued fever, and 4 typhoid. Of the latter two are returned from Rangoon and two from Seetabuldee: 47 cases of remittent fever are returned with 15 deaths.

1872	412
1873	410
1874	406
1875	456
1876	394
1877	539
1878	694

165. Venereal diseases were more prevalent than usual in the Native Army, and this result might have been anticipated from the circumstances of the poorer classes of the Native population already alluded to. The admissions from this cause for a series of years are shown in the margin.

STATIONAL SICKNESS AND MORTALITY AND ABSTRACT OF SANITARY NOTES, MILITARY.

166. There were 38 stations in the Madras Command occupied by European and Native troops during the year, besides Lovedale, Nicobar and Trevandrum where small detachments of Native regiments were stationed. The usual cantonment sanitary reports were received from these 38 stations by the Sanitary Commissioner.

167. In the following pages are given the stational sickness and mortality of the troops serving at each station, and a brief abstract of the sanitary notes contained in the reports received:—

Bangalore.

Latitude, 12° 58′.
Longitude, 77° 39′.
Height above sea, 3,000 feet.
Mean temperature, 75° 40′.
Average rainfall, 34 inches.
Rainfall in 1878, 40·81 do.

168. The following troops occupied the station during the year:—

Europeans.	Number of Weeks.	Natives.	Number of Weeks.
C-B Brigade R.A.	50	Queen's Own Sappers and Miners	24
D-C do.	52	4th Regiment N.I.	38
A-C do.	43	15th do. ...	1
K-C do.	5	Head-quarters 23rd Regiment L.I.	6
14th Hussars	52	36th Regiment N.I. ...	49
45th Regiment	6	Garrison	52
67th do.	47		
Details and Garrison ...	52		

169. In the table below is given the sickness and mortality during the year contrasted with the mean results of former years, and the principal causes of admissions and deaths.

Digitized by Google

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength	1,610	1,768				
Total admissions	1,885	998	1170·8	564·5	1163·4	751·5
Daily sick	105·47	42·25	65·5	23·9	51·4	26·2
Deaths in hospital	14	19	8·6	10·7	12·3	11·2
Do. out of do.	3	·3	1·8	1·7		

Principal Diseases.	British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	8	...	...	...	4·5	...
Fevers	313	4	400	2	194·4	2·4	226·2	1·1
Cholera	...	...	...	...	...	...	...	...
Rheumatism	55	...	44	...	34·1	...	24·9	...
Dysentery	67	...	22	1	41·6	...	12·4	0·5
Diarrhœa	55	1	27	2	34·1	0·6	15·2	1·1
Hepatic diseases	79	4	3	...	49·0	2·4	1·7	...
Venereal do.	482	...	105	...	299·3	...	59·3	...

Drainage ... ... Of the European barracks good.

Water-supply ... ... Fairly good, obtained from Ulsoor Tank and wells at Agram.

Epidemics ... ... None. A few sporadic cases of cholera occurred among the civil population.

Conservancy and sanitary condition. Conservancy of the bazaar is attended to by the Municipality, and the sanitary condition of the station was fair. There are 44 latrines and 10 urinals for the use of the civil population, being on an average 1 to every 1,000 people. The latrines are kept clean; dry-earth system is adopted in them. Sewage, night-soil, and sweepings are removed to a distance in air-tight receptacles.

Prices of food and meteorology. The season was favorable, and prices of food moderate. Rice, 2nd sort, was sold at 8 lb.; cholum at 28 lb.; bread, mutton, and beef at 6, 7, and 8 lb. respectively per rupee. 40 inches of rain fell against an average of 34 inches.

Cantonment rules ... In force. The number of women on the register during the year was 231. A special detective agency was recommended.

Suggestions for sanitary improvements. Narrow lanes and backyards of principal houses require more frequent and careful inspection.

Sanitary works ... Several box-drains were constructed wherever needed, and a latrine was built at Ulsoor.

General health ... Satisfactory.

Bellary.

Latitude, 15° 10′.
Longitude, 76° 53′.
Height above sea, 1,500 feet.
Mean temperature, 80°.
Average rainfall, 17 inches.
Rainfall in 1878, 25·51 do.

170. In this station the regiments noted below were located during the year:—

Digitized by Google

Europeans.	Number of Weeks.	Natives.	Number of Weeks.
B-C Brigade R.A.	43	E Company Sappers and Miners	2
G-C do.	11	4th Regiment L.C.	52
2-13th Regiment	39	21st Regiment N.I.	52
43rd do.	12	27th do. ...	52
		Garrison	52

171. The sickness and mortality during the year compared with the mean results of former years is given in the following table, together with the principal causes of admissions and deaths:—

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength	869	1642				
Total admissions	1607	1600	1849·2	974·4	1150·5	526·5
Daily sick	76·52	70·46	88·0	42·9	62·2	22·8
Deaths in hospital	11	35	12·6	21·3	} 9·2	} 9·4
Do. out of do.	...	5	...	3·0		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	1	...	...	...	0·6	...
Fevers	912	5	937	8	1049·4	5·7	570·6	4·8
Cholera	2	2	27	18	2·3	2·3	16·4	10·9
Rheumatism	17	...	50	...	19·5	...	30·4	...
Dysentery	19	...	54	2	21·8	...	32·8	1·2
Diarrhœa	35	1	27	...	40·2	1·1	16·4	...
Hepatic diseases	10	1	...	...	11·5	1·1	...	...
Venereal do.	280	...	36	...	322·2	...	21·9	...

Drainage ... ... Surface drainage generally. Improvements are required, but funds are wanting to carry them out.

Water-supply ... ... Is obtained from the Fort ditch reservoir and neighbouring wells; of good quality.

Epidemics ... ... Cholera prevailed from April to November. It was imported by return pilgrims from Humphi festival. Every precaution was taken to prevent its spread. The soldiers were prevented from going to the bazaar. Among the troops there were 29 cases and 20 deaths; Europeans, 2 cases and 2 deaths, and Natives 27 cases and 18 deaths.

Conservancy and sanitary condition. The sanitary condition of station was not altogether satisfactory. Conservancy of the bazaar was attended to by the Municipality assisted by an Inspector and staff of sweepers. Dry-earth system adopted in the latrines, of which there are 24, one to every 2,000 of population. Night-soil from these and from private houses is removed by municipal carts.

Prices of food and meteorology. The season was favorable, and prices of food moderate. Rice 16½ lb., ragi 37½, cholum 31½, and cumboo 32 for the rupee. The rainfall amounted to 25·5 inches, being 8½ inches more than the average.

Cantonment rules ... In force. There were 108 women on the register at the end of the year. The existence of famine refugees was the cause of some venereal disease among the troops. Prostitutes should be compelled to live in certain defined localities under police supervision to check spread of venereal diseases.

Suggestions for sanitary improvements. None.

Digitized by Google

Sanitary works ... None. Drains were opened and cleaned.

General health ... Unsatisfactory. Cholera, fevers and bowel-complaints were prevalent. Famine-poor were still to be found. Cholera is said to have been imported by return pilgrims from the Humphi festival. Among the civil population 285 persons fell victims.

Calicut.

Latitude, 11° 15′.
Longitude, 75° 52′.
Mean temperature, 78°.
Average rainfall, 114 inches.
Rainfall in 1878, 178 do.

172. A detachment of 48th Regiment occupied this station. The principal diseases which affected the men are given in the following table, and the sickness, &c., compared with the mean results of former years :—

—	British Troops.	Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 12 years ending 1877.
Average strength	98		
Total admissions	128	1306·1	1018·1
Daily sick	6·09	62·1	45·1
Deaths in hospital	2	20·4	17·1
Do. out of do.	1	10·2	

Principal Diseases.	A.	D.	Ratio for 1878. A.	Ratio for 1878. D.
Small-pox	...	...	...	...
Fevers	6	...	61·2	...
Cholera	...	...	...	...
Rheumatism	5	...	51·0	...
Dysentery	26	2	265.3	20·4
Diarrhœa	2	...	20·4	...
Hepatic diseases	5	...	51·0	...
Venereal do.	36	...	367·3	...

Drainage ... Good; requires no improvement.

Water-supply ... From wells, of good quality.

Epidemics ... None among the troops. Small-pox prevailed among the civil population.

Conservancy and sanitary condition. Sanitary condition of cantonment, fair. There are no public latrines. Night-soil from private privies and refuse are removed in carts and thrown into the sea.

Prices of food and meteorology. Climate favorable, and prices of food moderate. 178 inches of rain fell during the year.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. None.

Sanitary works ... None.

General health ... Satisfactory.

Digitized by Google

Cannanore.

Latitude, 11° 54′.
Longitude, 75° 25′.
Height above sea, 15 to 30 feet.
Mean temperature, 78°.
Average rainfall, 120 inches.
Rainfall in 1878, 172·5 do.

173. A detachment of the 48th Regiment, 13-8th Brigade Royal Artillery for forty-three weeks, 9th Regiment Native Infantry and 25th Regiment Native Infantry for seventeen weeks occupied this station. Their sickness and mortality is given below contrasted with former years:—

——	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 years ending 1877. British Troops.	Mean of 12 years ending 1877. Native Troops.
Average strength ...	640	896	...	...	...	...
Total admissions ...	824	487	1287·5	543·5	1149·7	432·9
Daily sick	34·20	18·69	53·4	20·8	53·2	17·4
Deaths in hospital ...	12	3	18·7	3·3	15·5	6·8
Do. out of do. ...	1	1	1·5	1·1		

Principal Diseases.	British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	1	...	...	...	1·1	...
Fevers	178	1	105	...	278·1	1·5	117·1	...
Cholera	2	2	...	...	3·1	3·1	...	...
Rheumatism	18	...	33	...	28·1	...	36·8	...
Dysentery	86	2	18	...	134·3	3·1	20·1	...
Diarrhœa	22	...	16	...	34·3	...	17·8	...
Hepatic diseases ...	52	3	...	...	81·2	4·7	...	...
Venereal do.	108	...	15	...	168·7	...	61·7	...

Drainage ... For the most part natural; surface drainage satisfactory.

Water-supply ... Good, obtained from wells.

Epidemics ... None; a few cases of modified small-pox occurred in the 9th Regiment and 2 cases of sporadic cholera in the 48th Regiment among men undergoing cell punishment: no special cause can be assigned for the occurrence. The sanitary condition of the cell was good. Cholera cases were reported at the time in the district.

Conservancy and sanitary condition. Sanitary condition of latrine and cantonment satisfactory. There is one latrine to every 1,500 people. Dry-earth system is adopted. Night-soil and refuse are buried outside of cantonment.

Prices of food and meteorology. Prices of food were rather high, rice being sold at 11 lb. the rupee, and beef and mutton at 8 and 4 lb. Fish was cheap and abundant. 172 inches of rain fell against an average of 120 inches.

Cantonment rules ... In force; 54 women on the register. Venereal disease decreasing.

Suggestions for sanitary improvements. Conservancy of officers' compounds should be improved and latrines provided for the use of servants.

Sanitary works ... Two culverts and 9 tunnels were renewed, slaughter-house, market and small-pox sheds were re-thatched, 20 latrines and certain roads were repaired, drains and nullahs cleaned, rank vegetation removed, and 132 avenue trees planted.

General health ... Satisfactory; a few cases of cholera and small-pox in a modified form occurred.

Digitized by Google

Chandah.

Latitude, 19° 55′.
Longitude, 79° 25′.
Average rainfall, 44 inches.
Rainfall in 1878, 59 do.

174. A detachment of the 8th Regiment Native Infantry for fifty-one weeks and another of the 5th Regiment Native Infantry for two weeks were at this station during the year. Their sickness and mortality are given below :—

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Mean of 12 years ending 1877.
Average strength	73		
Total admissions	114	1561·6	1691·8
Daily sick	3·17	43·4	46·4
Deaths in hospital	1	13·7	10·5
Do. out of do.	...	...	

Principal Diseases.	A.	D.	Ratio for 1878. A.	Ratio for 1878. D.
Small-pox	...	...	...	...
Fevers	70	...	958·9	...
Cholera	...	...	...	...
Rheumatism	6	...	82·2	...
Dysentery	1	...	13·7	...
Diarrhœa	1	...	13·7	...
Hepatic diseases	...	...	...	...
Venereal do.	2	...	27·4	...

Drainage ... Good and sufficient.

Water-supply ... Obtained from wells in the vicinity of the lines; of good quality.

Epidemics ... None among the troops or people in cantonment; but the civil population suffered much from cholera during May, June and July. The disease is said to have been imported from the Berars. During the prevalence of the disease the troops were prevented from frequenting the infected places.

Conservancy and sanitary condition. Fair; the latrines are kept in good order; dry-earth system is adopted. Night-soil, sewage, &c., are buried in trenches.

Prices of food and meteorology. Articles of consumption were moderate in price; 23 lb. of rice were obtained for a rupee, wheat 22 and dholl 38 lb. 59 inches of rain fell against an average of 44.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. None.

Sanitary works ... Nothing of importance. Rank vegetation was removed and the wells were cleaned out.

General health ... With the exception of an outbreak of cholera among the civil population, the general health was satisfactory. Fevers however prevailed somewhat, resulting probably from the unusually large amount of rainfall.

Digitized by Google

Cuttack.

Latitude, 20° 20′.
Longitude, 85° 57′.
Average rainfall, 60·6 inches.
Rainfall in 1878, 54·67 do.

175. The 12th Regiment Native Infantry was located here throughout the year. Below is given the principal causes of admissions and deaths and a comparison of the sickness, &c., with former years:—

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 12 years ending 1877.
Average strength	658		
Total admissions	566	860·2	672·5
Daily sick	15·51	23·5	32·2
Deaths in hospital	2	3·0	8·2
Do. out of do.	3	4·5	

Principal Diseases.	A.	D.	Ratio for 1878. A.	Ratio for 1878. D.
Small-pox	...	...	...	...
Fevers	316	1	480·2	1·5
Cholera	3	...	4·5	...
Rheumatism	14	...	21·2	...
Dysentery	28	...	42·5	...
Diarrhoea	23	...	34·9	...
Hepatic diseases	...	...	...	...
Venereal do.	6	...	9·1	...

Drainage ... Very defective owing to the low-lying position of the lines. There is an entire absence of any system of drainage, and the refuse waters soak into the ground round the huts.

Water-supply ... Of fair quality and sufficient; obtained from wells and tanks in and near the lines.

Epidemics ... Cases of cholera occurred among the civil population; among the troops and families 3 sepoys and 4 children were attacked and 3 of the latter died.

Conservancy and sanitary condition. Sanitary condition of bazaar unsatisfactory; there is no drainage, and the houses are close and crowded. The rubbish is removed daily and the streets kept tolerably clean. There are no public latrines. The regimental latrine having been found defective, is being rebuilt. Sewage of private houses and night-soil, &c., are carted away, and supposed to be buried by the river-side. Arrangements are being made to have them properly trenched.

Prices of food and meteorology. The season was favorable, and the prices of food moderate. 54·6 inches of rain fell during the year against an average of 60 inches.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. Removal of lines from the present site recommended, owing to its low position; the construction of V-shaped drains along each row of huts recommended.

Sanitary works ... None.

General health ... Favorable on the whole. A few cases of cholera occurred.

Digitized by Google

French Rocks.

Height above sea, 3,300 feet.

176. A detachment of 28th and 30th Regiments Native Infantry occupied the station during the year, the former for four and the latter for forty-eight weeks. The sickness and mortality among them are contrasted below with the mean results of former years :—

—	Native Troops.		Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 11 years ending 1877.
Average strength	570			
Total admissions	668		1171·9	695·7
Daily sick	16·42		28·8	25·2
Deaths in hospital	10		17·5	12·9
Do. out of do.	1		1·7	
Principal Diseases.	**A.**	**D.**	**Ratio for 1878. A.**	**Ratio for 1878. D.**
Small-pox	...	...	...	...
Fevers	412	6	722·8	10·5
Cholera	...	...	...	...
Rheumatism	21	...	30·7	...
Dysentery	11	1	19·3	1·7
Diarrhœa	14	...	24·5	...
Hepatic diseases	...	...	...	...
Venereal do.	3	...	5·2	...

Drainage ... Natural drainage good from the configuration of the ground.

Water-supply ... Obtained principally from wells and also from tanks; of good quality.

Epidemics ... None. Malarious fevers prevalent.

Conservancy and sanitary condition. Sanitary condition fair, latrines are kept clean, of which there are 2 to every 1,000 people. Dry-earth system is adopted. Night-soil, rubbish, &c., are daily carted outside the station and used for cultivation.

Prices of food and meteorology. Prices of food moderate during first half of the year. No meteorological register kept, but there was an excessive fall of rain during the latter half of the year and prices of food rose somewhat.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. Construction of V-shaped drains and dust-bins recommended.

Sanitary works ... None.

General health ... On the whole fair.

Hoshungabad.

Latitude, 22° 45′.
Longitude, 75° 50′.
Average rainfall, 60 inches.
Rainfall in 1878, 50 do.

177. The Head-Quarters and Left Wing of the 22nd Regiment Native Infantry garrisoned this station throughout the year. Particulars regarding their sickness and mortality are given below :—

Digitized by Google

—	Native Troops.	Ratio per 1,000 of Strength.	
		1878.	Mean of 12 years ending 1877.
Average strength	363		
Total admissions	539	1484·8	924·5
Daily sick	10·76	29·6	28·3
Deaths in hospital	10	27·5	} 11·6
Do. out of do.	1	2·7	

Principal Diseases.	A.	D.	Ratio for 1878.	
			A.	D.
Small-pox	...	...	...	...
Fevers	330	5	999·9	13·7
Cholera	8	3	22·0	8·2
Rheumatism	22	...	60·6	...
Dysentery	10	...	27·5	...
Diarrhœa	2	...	5·4	...
Hepatic diseases	...	...	...	...
Venereal do. ...	27	...	73·4	...

Drainage ... Natural position of station is good, but no attempt has been made at either surface or subsoil drainage.

Water-supply ... Obtained from wells in the cantonment; of good quality and plentiful.

Epidemics ... Cholera prevailed extensively; 18 cases occurred in the regimental lines, 10 of which were among the followers. Among the troops (22nd Regiment Native Infantry) there were 8 cases and 3 deaths. In the city of Hoshungabad there were 240 cases and 119 deaths. The disease was imported by a child on its return from a Hindu festival in the Bhopal territory. During its prevalence the regimental people were prevented from having intercourse with the civil population.

Conservancy and sanitary condition. Sanitary condition of bazaar fairly good. No public latrines. Those of the regimental lines are kept in good sanitary state. Dry-earth system is partially adopted.

Prices of food and meteorology. Prices of food not given; vegetables were scarce. Excessive heat was followed by an unusually severe cold season. 50 inches of rain fell against an average of 45 inches.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. None.

Sanitary works .... None.

General health ... Fever of an intermittent type was very prevalent.

Kamptee.

Latitude, 21° 16'.
Longitude, 79° 14'.
Height above sea, 1,500 feet.
Average rainfall, 58 inches.
Rainfall in 1878, 54·75 do.

178. The regiments which occupied this station are given below :—

Europeans.	No. of Weeks.	Natives.	No. of Weeks.
E-6th Brigade, R.A. ...	52	2nd Regiment, L. C. ...	52
G-6th do. ...	41	Right Wing 22nd Regt. N.I.	52
H. M.'s 83rd Regiment ...	52	35th Regiment N. I. ...	52
Garrison	52	Garrison	52

Digitized by Google

179. In the following table the sickness and mortality are compared with the results of former years and the principal causes of admissions and deaths are given :—

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 years ending 1877. British Troops.	Mean of 12 years ending 1877. Native Troops.
Average strength	845	1,315				
Total admissions	1,245	946	1473·3	719·4	1670·4	807·5
Daily sick	49·03	30·61	58·0	23·2	62·6	27·2
Deaths in hospital	16	13	18·9	9·8	} 16·1	9·9
Do. out of do.	...	4	...	3·0		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	10	4	3	...	11·8	4·7	2·2	...
Fevers	471	2	413	2	557·4	2	314·0	1·5
Cholera	5	3	11	4	5·9	3·5	8·3	3·0
Rheumatism	30	...	29	...	35·5	...	22·0	...
Dysentery	33	...	29	...	39·0	...	22·0	...
Diarrhœa	33	...	8	...	39·0	...	6·0	...
Hepatic diseases	18	1	2	...	21·3	1·1	1·5	...
Venereal do.	203	...	21	...	240·2	...	15·9	...

Drainage ... Fair, but susceptible of improvement. The drains run into the main nullahs that empty themselves into the Khanan and Bagdarrh Rivers.

Water-supply ... Good and abundant from wells; some of the Native civil population use the water from the Khanan River for drinking.

Epidemics ... Cholera and small-pox prevailed. Among the European troops there were 10 admissions and 4 deaths from small-pox, and among the Native regiments and their families and followers 119 cases and 18 deaths were recorded. As small-pox declined, cholera made its appearance in May, having been imported by travellers from Raipore. There were 5 cases of cholera among the European troops, of which 3 proved fatal. Among the Native troops there were 11 cases and 5 deaths, and among the camp-followers 26 cases and 9 deaths. Both small-pox and cholera were prevailing in the district before they made their appearance in the cantonment. The former disease prevailed from January to May, and the latter from May to September. During the prevalence of the epidemic a kind of quarantine was observed in the cantonment, and the troops and their families were prevented from going into the Native town and bazaars.

Conservancy and sanitary condition. Sanitary state of bazaars fairly good. The condition of the bazaars has been much improved since the flood of 1876. The huts in the new bazaar have been built on a larger area of ground with broad streets. There are 28 public latrines; these and the regimental latrines are kept fairly clean in the hot weather, but during the monsoon it is impossible to keep them clean owing to their having no roofs. Dry-earth system is imperfectly carried out owing to caste objections. The rubbish, &c., and all the night-soil of the bazaars and cantonment is carried to the Temple Public Gardens and there buried in trenches; the ground is afterwards ploughed up and cultivated.

Prices of food and meteorology. The season was favorable, and food, though abundant, the prices were higher than usual owing to large exportations. 54 inches of rain fell against an average of 42 inches.

Cantonment rules ... In force. 59 women were on the register. An increase was noted in cases of primary syphilis, and a decrease in gonorrhœa.

Digitized by Google

Suggestions for sanitary improvements. That saucer drains be built in all the streets; that the wells be cleaned out every hot season; that parapet walls be built to all drinking water wells to prevent pollution of the water from surface drainage; that no latrines be allowed in private houses unless the owners bind themselves down to keep them clean; that more covered latrines be built; that drains be cut in all the streets in both the bazaars for the drainage of storm waters; that more dust-bins be put up; and that rubbish, &c. in the dry season be burnt.

Sanitary works ... The drainage was well looked after, the ventilation of both bazaars has been improved, and the construction of some saucer drains has been commenced.

General health ... Unfavorable. Cholera and small-pox prevailed in an epidemic form.

Madras (Fort St. George).

Latitude, 13° 4'.
Longitude, 80° 22'.
Height above sea, 5 to 15 feet.
Mean temperature, 82°.
Average rainfall, 47 inches.
Rainfall in 1878, ——

180. This station was occupied by the following regiments with varying periods of residence :—

Europeans.	No. of Weeks.
12/8th Brigade R.A.	43
43rd Regiment L.I.	47
67th Regiment	6
Details of various corps ...	52

Natives.	No. of Weeks.
Body Guard	52
10th Regiment N.I.	52
13th do.	50
15th do.	41
25th do.	8
Head-quarters L. W. 31st Regt. N.I.	4
33rd Regiment N.I.	14
39th do.	1

181. Their sickness and mortality are given below compared with former years :—

——	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 years ending 1877. British Troops.	Mean of 12 years ending 1877. Native Troops.
Average strength	590	2,093				
Total admissions	819	1,317	1,388·1	629·2	1,344·4	664·9
Daily sick	58·70	54·91	99·4	26·2	71·7	25·5
Deaths in hospital	9	12	15·2	5·7	20·2	11·6
Do. out of do.	1	5	1·7	2·4		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops A.	British Troops D.	Native Troops A.	Native Troops D.
Small-pox	...	...	...	...	...	...	...	...
Fevers	92	2	451	...	155·9	3·4	215·4	...
Cholera	...	...	...	...	...	...	...	...
Rheumatism	8	...	37	...	13·5	...	17·6	...
Dysentery	20	...	81	1	33·9	...	38·7	0·4
Diarrhœa	43	...	71	2	72·8	...	33·9	0·9
Hepatic diseases	32	3	1	...	54·2	5·1	0·4	...
Venereal do.	255	...	85	...	432·2	...	40·5	...

Digitized by Google

Drainage ... ... That of the Fort satisfactory; of the town unsatisfactory; nothing has been done to improve it.

Water-supply ... Water from the "Seven Wells" is brought by pipes into the Fort for use. The town people use Red Hills water, which is brought into different parts of the town by pipes. There was an abundant supply of water during the year.

Epidemics ... ... None among the troops. Cases of cholera occurred among the town population till July when it ceased, and in November a sharp and short-lived local outbreak suddenly occurred, chiefly among the East Indian population of Black Town.

Conservancy and sanitary condition. Sanitary condition of the Fort and the latrines in it is good. The sweepings and night-soil are removed twice a day by carts to a distance out of the Fort. Dry-earth system is adopted.

Prices of food and meteorology. Prices of food moderate. On the whole the season was favorable. There was a partial failure of the north-east monsoon rains. Only 28 inches were registered against a five years' average of 63.

Cantonment rules ... In force. An average of 1,129 women were on the register during the year. There was an increase of venereal among the troops attributed to the existence of famine-wanderers in the town. More strict police supervision required about the glacis of the Fort.

Suggestions for sanitary improvements. Stables for the employés in the public offices should be removed from near dwelling houses beyond the inner wall of the Fort.

Sanitary works ... None.

General Remarks ... On the whole fair.

Maliyapooram.

Latitude, 11° 3′.
Longitude, 76° 9′.
Average rainfall, 81 inches.
Rainfall in 1878, 149·37 inches.

182. A detachment of the 48th Regiment occupied this station for the whole year. The principal causes of admissions and deaths and a comparison of the sickness, &c. with former years are shown below:—

—	British Troops.	Ratio per 1,000 of Strength. 1878.	Mean of 12 years ending 1877.
Average strength	95		
Total admissions	30	315·7	944·7
Daily sick	1·72	18·1	40·6
Deaths in hospital	2	21·0	} 14·6
Do. out of do.	...	...	

Principal Diseases.	Admitted.	Died.	Ratio for 1878. Admitted.	Died.
Small-pox	...	...	...	...
Fevers	...	...	...	...
Cholera	2	2	21·0	21·0
Rheumatism	...	...	...	...
Dysentery	11	...	115·8	...
Diarrhœa	1	...	10·5	...
Hepatic diseases	6	...	63·2	...
Venereal do.	...	...	...	...

Drainage ... ... Good.

Water-supply ... From wells near the barracks, of fair quality. The wells are not covered in, and there are steps leading down to them which may subject the water to pollution.

Epidemics .. ... Two cases of cholera occurred among the troops (Detachment 48th Regiment); both proved fatal. A few cases of cholera and small-pox occurred among the civil population.

Conservancy and sanitary condition. Sanitary condition of bazaar satisfactory, but requires more supervision. There are six thatched latrines in the cantonment. They are kept clean, but the receptacles are too far from the seats, and thus the surrounding ground becomes soiled. Dry-earth system is adopted.

Prices of food and meteorology. Prices of food were moderate: rice was sold at 17 lb. the rupee. The season was favorable to health. 159 inches of rain fell against 102 in the preceding year.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. Brushwood from the neighbourhood of barracks should be removed, drinking-water wells should be covered in, and the receptacles in latrines should be altered.

Sanitary works ... Nothing of importance; a few drains were repaired and the ventilation of the Officers' quarters improved.

General health ... On the whole favorable. A few cases of cholera and small-pox occurred among the civil population.

Mangalore.

Latitude, 12° 52′.
Longitude, 74° 53′.
Height above sea, 40 feet.
Average rainfall, 130 inches.
Rainfall in 1878, 167·40 do.

183. The 34th Regiment Light Cavalry was in this station throughout the year; the sickness and mortality and the principal causes of admissions and deaths are given below:—

—	Native Troops.	Ratio per 1,000 of Strength 1878.	Ratio per 1,000 of Strength Mean of 12 years ending 1877.
Average strength	636		
Total admissions	223	350·9	470·5
Daily sick	9·97	15·7	17·5
Deaths in hospital	3	4·7	9·1
Do. out of do.	2	3·1	

Principal Diseases.	A.	D.	Ratio for 1878. A.	Ratio for 1878. D.
Small-pox	...	...	...	...
Fevers	72	1	113·2	1·5
Cholera	...	...	...	...
Rheumatism	9	...	14·1	...
Dysentery	22	1	34·5	1·5
Diarrhœa	6	...	9·4	...
Hepatic diseases	3	...	4·7	...
Venereal do.	8	...	12·6	...

Drainage ... ... Natural drainage good.

Water-supply ... ... Obtained from wells; of good quality.

Epidemics ... ... None. There was some bowel-complaints among the troops as well as among the civil population.

Conservancy and sanitary condition. Sanitary condition of latrines and bazaars fair. Dry-earth system is adopted in the latrines. Sewage from private houses runs into the gardens and is used for irrigation;—almost every house has a garden. Refuse from the regimental lines is removed daily by carts.

Digitized by Google

Prices of food and meteorology. Season was favorable and prices of food moderate. Rice was sold at 16 lb. the rupee. 167 inches of rain fell against an average of 130.

Cantonment rules ... Not in force.

Suggestions for improving sanitary condition. None.

Sanitary works ... None.

General health ... On the whole satisfactory.

Mercara.

Latitude, 12° 25′.
Longitude, 75° 15′.
Height above sea, 4,500 feet.
Average rainfall, 149·4 inches.
Rainfall in 1878, 95 do.

184. This station was occupied by the 28th Regiment Native Infantry for the whole year. The particulars of sickness and mortality are given below:—

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 12 years ending 1877.
Average strength	627		
Total admissions	758	1208·9	1034·7
Daily sick	25·33	40·4	40·0
Deaths in hospital	14	22·3	13·3
Do. out of do.	...	...	

Principal Diseases.	A.	D.	Ratio for 1878. A.	Ratio for 1878. D.
Small-pox	2	...	3·1	...
Fevers	582	6	928·2	9·5
Cholera	...	...	...	...
Rheumatism	7	1	11·1	1·6
Dysentery	39	5	82·2	7·9
Diarrhœa	13	1	20·7	1·6
Hepatic diseases	...	...	...	...
Venereal do.	3	...	4·7	...

Drainage ... ... Natural drainage is good, but no attempts have been made to improve it artificially.

Water-supply ... Good from tanks and wells.

Epidemics ... ... None. Bowel-complaints prevailed somewhat. Out of a strength of 628 men, there were 52 admissions and 6 deaths from this cause among the troops during the year.

Conservancy and sanitary condition. The streets in the bazaars are kept fairly clean. There is only one public latrine; the latrines in the lines are well attended to; dry-earth system is adopted in them. Sweepings and rubbish, &c., from the station and private houses are carted daily and buried in pits in the neighborhood.

Prices of food and meteorology. The weather was unusually hot and the rains were late in coming and below the average. Only 95 inches fell against an average of 120 inches. Prices of food were however moderate, 16 lb. of rice being sold for a rupee.

Cantonment rules ... Not in force

Suggestions for sanitary improvements. The cattlemen's village, which is a filthy collection of huts, should be removed from the neighbourhood of the lines, and V-shaped drains should be built throughout the cantonment.

Sanitary works ... None.

General health ... Tolerably good.

Digitized by Google

Moulmein.

Latitude, 16° 30′.
Longitude, 97° 30′.
Average rainfall, ——.
Rainfall in 1878, 136·12 inches.

185. Detachments from three Native regiments garrisoned this station during the year from time to time, viz., Head-Quarters and Left Wing 15th Regiment Native Infantry for eight weeks, Head-Quarters Light Wing 4th Regiment Native Infantry for twelve weeks, and detachment 33rd Native Infantry for thirty-eight weeks. Their sickness and mortality are given in the following table compared with the mean results of former years :—

—	Native Troops.		Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 12 years ending 1877.
Average strength	361			
Total admissions	122		337·9	1068·8
Daily sick	5·14		14·2	43·4
Deaths in hospital	5		13·8	13·3
Do. out of do.	1		2·8	
Principal Diseases.	**A.**	**D.**	**Ratio for 1878. A.**	**Ratio for 1878. D.**
Small-pox	...	...	...	...
Fevers	22	...	60·9	...
Cholera	1	1	2·8	2·8
Rheumatism	6	...	16·6	...
Dysentery	12	...	33·2	...
Diarrhœa	9	...	24·9	...
Hepatic diseases	...	...	...	...
Venereal do.	4	...	11·0	...

Drainage ...	... The cantonment is situated on the slope of a hill, and the drainage is good.
Water-supply ...	... Good from wells.
Epidemics ...	... There was some cholera among the civil population, and one fatal case occurred among the Native regiment occupying this station.
Conservancy and sanitary condition.	Fair. There are 2 public latrines. The regimental latrines are well looked after; dry-earth system is adopted in them. The night-soil from the latrines (regimental and private) and sweepings, &c., are removed daily in carts and buried.
Prices of food and meteorology.	Prices of food were moderate. The rainfall was below the average by 40 inches. 136 inches fell.
Cantonment rules	... Not in force.
Suggestions for sanitary improvements.	The removal of the village of Chota Mandalay recommended.
Sanitary works	... None.
General health	... Satisfactory.

Digitized by Google

Mysore.

Latitude, 12° 8′.
Longitude, 76° 44′.
Height above sea, 2,450 feet.
Average rainfall, 28 inches.
Rainfall in 1878, 31·62 do.

186. A detachment of the 30th Regiment Native Infantry garrisoned this station for forty-eight weeks, and its place was taken up by a detachment of the 28th Regiment Native Infantry. The sickness and mortality are given below :—

—	Native Troops.		Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 9 Years ending 1877.
Average strength	63			
Total admissions	73		1,158·7	733·5
Daily sick	1·27		20·1	12·7
Deaths in hospital	2		31·7	8·6
Do. out of do.	...		...	
Principal Diseases.	**A.**	**D.**	**Ratio for 1878. A.**	**Ratio for 1878. D.**
Small-pox	...	...	...	...
Fevers	51	1	809·5	15·9
Cholera	...	...	...	...
Rheumatism	3	...	47·6	...
Dysentery	1	...	15·9	...
Diarrhœa	3	...	47·6	...
Hepatic diseases	...	...	...	...
Venereal do.	...	...	...	...

Drainage ... ... Tolerably good; requires improvement, which from want of funds cannot be effected.
Water-supply ... ... Good; obtained from a tank and wells principally.
Epidemics ... ... A few cases of cholera occurred among the civil population in July and August. None among the troops.
Conservancy and sanitary condition. Fair. There are 5 public latrines and 4 urinals, and they are kept fairly clean. The night-soil, sweepings, &c., and sewage from private houses are removed by municipal and private carts.
Prices of food and meteorology. The season was favorable, but prices of food were a little higher than the average. 31·6 inches of rain fell, being about the average fall.
Cantonment rules ... Not in force.
Suggestions for sanitary improvements. None.
Sanitary works ... V-shaped drains were constructed. A water-project undertaken by the State for supplying the station with water is in progress, and the general cleansing of the station is attended to by the Municipality.
General health ... On the whole satisfactory.

Palamcottah.

Latitude, 8° 45′.
Longitude, 77° 48′.
Height above sea, 120 feet.
Average rainfall, 20 inches.
Rainfall in 1878, ——

28

Digitized by Google

187. This station was occupied by the 37th Grenadiers for the whole year with an average strength of 563. The sickness, admissions, and deaths are contrasted with former years in the following table:—

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 12 Years ending 1877.
Average strength	563		
Total admissions	335	595·0	496·1
Daily sick	13·6	24·1	18·2
Deaths in hospital	6	10·6	8·2
Do. out of do.	3	5·3	

Principal Diseases.	A.	D.	Ratio for 1878. A.	Ratio for 1878. D.
Small-pox	1	...	1·7	...
Fevers	118	...	209·6	...
Cholera	1	...	1·7	...
Rheumatism	27	...	47·9	...
Dysentery	10	...	17·7	...
Diarrhœa	6	...	10·6	...
Hepatic diseases	1	...	1·7	...
Venereal do.	26	...	46·2	...

Drainage ...	... Of the lines fairly good; requires improvement, but there are natural difficulties to be encountered from preventing the lines being flooded in times of heavy rain. Some marshy lands exist near the lines, which are being gradually reclaimed.
Water-supply ...	... From wells; of fair quality.
Epidemics ...	... None. One case of sporadic cholera occurred among the troops, which recovered.
Conservancy and sanitary condition.	The latrines in the lines are kept fairly clean. Dry-earth system is adopted. Sanitary condition of station fair. Night-soil, sweepings, and rubbish, &c., from station and private houses are removed daily by the Municipality.
Prices of food and meteorology.	Prices of food were somewhat high. Second-sort rice was sold at 12 lb. per rupee. No meteorological register was kept during the year.
Cantonment rules	... Not in force. Venereal diseases prevailed among the troops, of which there were 21 admissions during the year.
Suggestions for sanitary improvements.	A lock hospital should be established.
Sanitary works	... None.
General health	... Fairly good.

Pallavaram.

188. A company of the European Artillery Veterans is permanently located at this station, but detachments of the regiments which garrison Fort St. George go to Pallavaram from time to time for rifle practice. During the year a detachment of the 67th and 43rd Regiments had thus been there, the former for six and the latter for seventeen weeks. The sickness and mortality among them during their stay at the station are given in the following table, as well as the sickness, &c., of the Native Regiments which occupied it during the year, contrasted with the mean results of former years. Pallavaram is a depôt for Native troops also.

Digitized by Google

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength	26	549				
Total admissions	9	522	346·1	950·8	464·9	1398·5
Daily sick	0·68	30·23	26·1	55·0	26·3	114·7
Deaths in hospital	1	9	38·4	16·4	} 10·8	38·7
Do. out of do.	...	...	...	...		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	...	...	...	...	...	...
Fevers	1	...	67	1	38·4	...	122·0	1·8
Cholera	...	...	...	...	...	...	...	...
Rheumatism	...	...	52	...	...	...	94·7	...
Dysentery	2	...	19	...	76·8	...	34·6	...
Diarrhœa	...	...	8	1	...	...	14·5	1·8
Hepatic diseases	...	...	...	...	...	...	...	...
Venereal do.	...	...	26	...	...	...	47·3	...

Drainage ... ... Fair.

Water-supply ... ... Good; obtained from covered wells.

Epidemics ... ... None.

Conservancy and sanitary condition. Station kept fairly clean. There are 4 public latrines, one to every 600 of population. Regimental latrines are kept in good order. Dry-earth system is adopted in them. Night-soil and rubbish are carted to a distance out of the cantonment.

Prices of food and meteorology. Season was favorable and prices of food moderate. Second-sort rice was sold at 15 lb. per rupee. 24 inches of rain fell, which is below the average fall.

Cantonment rules ... In force. 9 women on the register, which is rather a small number for a cantonment like Pallavaram. There was an increase of venereal diseases during the year.

Suggestions for sanitary improvements. None.

Sanitary works ... Nothing of importance. Drains were kept clean and the conservancy of the station was attended to.

General health ... Tolerably good. Nothing unusual.

Poonamallee (Invalid Depot).

Latitude, 13° 0′.
Longitude, 80° 10′.
Mean temperature, 80°.
Average rainfall, ——
Rainfall in 1878, ——

189. The average strength of this depôt during the year was 159, and the sickness and mortality are given below compared with the mean results of former years:—

Digitized by Google

—	British Depôt.	Ratio per 1,000 of Strength. 1878.	Mean of 12 Years ending 1877.
Average strength	159		
Total admissions	237	1490·5	2,829·4
Daily sick	19·8	124·5	231·0
Deaths in hospital	10	62·8	58·9
Do. out of do.	1	6·2	

Principal Diseases.	A.	D.	Ratio for 1878. A.	D.
Small-pox	...	...	...	...
Fevers	19	...	119·5	...
Cholera	1	...	6·3	...
Rheumatism	9	...	56·6	...
Dysentery	49	4	308·1	25·1
Diarrhœa	22	...	138·3	...
Hepatic diseases	52	2	327·0	12·6
Venereal do.	21	...	132·1	...

Drainage ... ... Good.

Water-supply ... ... Good; from wells.

Epidemics ... ... None.

Conservancy and sanitary condition. The cantonment was kept clean and the sanitary condition of the bazaars was satisfactory. There are 4 public latrines, one to every 1,000 people. The latrines in the depôt are well looked after; dry-earth system is adopted in them. All night-soil, sweepings, rubbish, &c., are buried in trenches at a distance from the station.

Prices of food and meteorology. The season on the whole was favorable, and prices of food were moderate.

Cantonment rules ... In force. There were 19 women on the register. The rules are worked indifferently. Better supervision is required by the Civil Medical Officers at the periodical examinations of the prostitutes.

Suggestions for sanitary improvements. None.

Sanitary works ... Two drains and one tank were repaired and cleaned.

General health ... On the whole satisfactory.

Port Blair (Andamans).

Latitude, 12° 0'.
Longitude, 92° 50'.
Average rainfall, 115 inches.
Rainfall in 1878, 100 do.

190. A detachment of the 89th Regiment occupied this station for the whole year, with a detachment of the 15th Regiment Native Infantry for nine weeks and Head-Quarters 23rd Light Infantry for forty-five weeks. The following table gives the sickness and mortality of the British and Native troops at the station compared with former years :—

Digitized by Google

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength	130	584				
Total admissions	180	1,018	1,384·6	1743·1	863·7	1497·0
Daily sick	5·97	28·42	45·9	48·6	35·5	53·2
Deaths in hospital	1	8	7·6	13·7	} 11·0	12·1
Do. out of do.	...	2	...	3·4		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	...	...	...	...	...	...
Fevers	26	...	766	6	200·0	...	1,311·6	10·2
Cholera	...	...	...	...	...	...	...	...
Rheumatism	2	...	15	...	15·3	...	25·7	...
Dysentery	5	...	19	...	38·4	...	32·5	...
Diarrhœa	1	...	16	...	7·6	...	27·4	...
Hepatic diseases	13	...	2	...	100·0	...	3·4	...
Venereal do.	7	...	10	...	53·8	...	17·1	...

Drainage ... ... Is good in some parts and indifferent in others. Requires improvement.

Water-supply ... ... Good; from wells and tanks.

Epidemics ... ... None.

Conservancy and sanitary condition. The settlement is kept clean and the sanitary condition is good. Some good drains and roads exist. Sweepings, rubbish, &c., are buried, and liquid sewage refuse from private houses is thrown into the sea.

Prices of food and meteorology. Season was unfavorable. Prices of food not given. 115 inches of rain fell against an average of 100 inches.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. Tanks and wells should be conserved to ensure a pure water-supply, and the drains improved.

Sanitary works ... Nothing of importance. Substantial drains are being laid out wherever required.

General health ... ... Unsatisfactory. Malarial fevers prevailed considerably, and for the first time typhoid fever made its appearance in the settlement. Four cases in all occurred during the year; one was an Officer of 23rd N.I. Of the four cases three died.

Quilon.

Latitude, 8° 53′.
Longitude, 76° 33′.
Average rainfall, 91 inches.
Rainfall in 1878, 111 do.

191. A detachment of the 26th Regiment Native Infantry was located at this station throughout the year with an average strength of 484 men. The sickness and mortality are contrasted in the following table with the mean results of former years :—

Digitized by Google

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Mean of 12 Years ending 1877.
Average strength	484		
Total admissions	272	561·9	483·8
Daily sick	15·39	31·8	22·1
Deaths in hospital	4	8·2	8·5
Do. out of do.	2	4·1	

Principal Diseases.	A.	D.	Ratio for 1878. A.	D.
Small-pox	...	...	...	...
Fevers	39	...	80·5	...
Cholera	...	...	...	...
Rheumatism	12	...	24·8	...
Dysentery	6	...	12·4	...
Diarrhœa	14	...	28·9	...
Hepatic diseases	2	...	4·1	...
Venereal do.	9	...	18·5	...

Drainage ... ... There are no regular drains. Surface drainage is satisfactory. The entire surrounding country consists of extensive backwaters, which are connected with one another by canals, forming an extensive water communication in the Travancore country for traffic.

Water-supply ... ... Good and sufficient.

Epidemics ... ... Cholera and small-pox prevailed in the town among the civil population. Precautions were taken to prevent the epidemics spreading into cantonment and no cases occurred among the troops.

Conservancy and sanitary condition. Sanitary condition of bazaar is unsatisfactory. It is under the control of the Travancore Government. The regimental latrines are kept clean as well as the public latrines, of which there are two. Two more are to be built. Dry-earth is used in all the latrines. Sweepings, rubbish, and night-soil from cantonment are carted away and buried outside the limits. The refuse, &c., from private houses are disposed of by private arrangements.

Prices of food and meteorology. There was an excessive fall of rain of 111 inches during the year, which was trying to the health of the people. Prices of food were rather high. Rice, the staple article of food, was sold at 12 lb. per rupee.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. None.

Sanitary works ... None.

General health ... Fair.

Rangoon.

Latitude, 16° 46′.
Longitude, 96° 20′.
Height above the sea, 80 feet.
Average rainfall, 114 inches.
Rainfall in 1878, 97 do.

192. The regiments (European and Native) and the batteries of Artillery which occupied this station during the year, and the principal causes of sickness and mortality among them are given below :—

Europeans.	No. of Weeks.	Natives.	No. of Weeks.
10-8th Brigade, R.A. ...	52	D Company, Sappers and Miners	52
11-8th do.	52	24th Regt. N.I.	52
12 8th do.	1	Garrison	52
89th Regiment	52		
Garrison Details	52		

Digitized by Google

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength ...	750	1,441				
Total admissions ...	975	997	1,300·0	691·9	1,253·3	616·9
Daily sick	39·15	45·30	52·2	31·4	55·9	29·6
Deaths in hospital ...	17	14	22·6	9·7	13·6	10·5
Do. out of do. ...	3	1	4·0	0·7		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	4	1		...	2·7	0·7
Fevers	140	..	170	1	186·6	...	117·9	0·7
Cholera	6	2	2	1	8·0	2·6	1·4	0·7
Rheumatism	51	...	69	...	68·0	...	47·9	...
Dysentery	95	4	114	...	126·6	5·3	79·1	...
Diarrhœa	75	...	41	1	100·0	...	28·4	0·7
Hepatic diseases	64	6	...	...	85·3	8·0	...	...
Venereal do.	108	...	77	...	144·0	...	53·4	...

Drainage ... ... The flatness of the country prevents the easy flow of storm-waters in the drains.

Water-supply ... ... Obtained from wells and tolerably good.

Epidemics ... ... Cholera prevailed somewhat extensively among the civil population. It first broke out in May and lasted for three months, when it ceased a little and broke out again, lasting till the end of the year. Among the troops there were 8 cases and 3 deaths, 6 of which with 2 deaths occurred among the European troops, the 89th Regiment contributing 4 cases and 2 deaths.

Conservancy and sanitary condition. Sanitary state of bazaar satisfactory. There are ten public latrines, which are kept fairly clean. Sweepings, rubbish, night-soil, &c., are removed by municipal carts and used for cultivation.

Prices of food and meteorology. Season was unfavorable. Prices of articles of consumption were moderate, but that of rice rather high, second-sort rice being sold at 12 lb. per rupee. 87 inches of rain fell, being 10 below the average.

Cantonment rules ... In force in the town, but not in the cantonment. 463 women were on the register during the year. More police supervision required to prevent clandestine prostitution.

Suggestion for sanitary improvements. None.

Sanitary works ... Some drains were cut and others repaired. The conservancy of the town was attended to.

General health ... Unsatisfactory.

Ramandroog.

Latitude, 15° 8′.
Longitude, 76° 33′.
Average rainfall, 38 inches.
Rainfall in 1878, 54·49 inches.

Digitized by Google

193. This station is a convalescent depôt principally for the troops in Bellary. In the past year the mean strength was 30, admissions 122, and daily sick 3·7. One man died during the year. In the following table is given the principal causes of admissions and the sickness and mortality compared with former years :—

—	Her Majesty's Convalescent Depôt.		Ratio per 1,000 of Strength.	
			1878.	Mean of 12 Years ending 1877.
Average strength ...	30			
Total admissions ...	122		4,066·6	1,257·5
Daily sick	3·76		125·3	...
Deaths in hospital ...	1		33·3	} 10·9
Do. out of do. ...	...		...	
Principal Diseases.	A.	D	Ratio for 1878.	
			A.	D.
Small-pox	...	...	...	...
Fevers	83	...	2,766·6	...
Cholera	...	...	...	...
Rheumatism	2	...	66·6	...
Dysentery	3	...	100·0	...
Diarrhœa	3	...	100·0	...
Hepatic diseases ...	5	...	166·6	...
Venereal do.	1	...	33·3	...

Drainage ... ... All the drains are open ones and the drainage is satisfactory.

Water-supply ... ... Good; from springs in the sides of the hill.

Epidemics ... ... None.

Conservancy and sanitary condition. Sanitary state of bazaar defective. There are no public privies. The regimental latrines are kept clean and the conservancy of the cantonment is good. Filth, &c., from private houses is removed and buried at a distance on side of the hill.

Prices of food and meteorology. The season was favorable and prices of food moderate. 54·5 inches of rain fell, being 16 inches more than the average.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. Two or three tanks for storage of water should be constructed.

Sanitary works ... New V-shaped drains in married quarters are in progress. A new V-shaped drain in the hospital has been built and the main drain repaired.

General health ... Satisfactory.

Raepore.

Latitude, 26° 10′.
Longitude, 71° 0′.
Average rainfall, 45·00 inches.
Rainfall in 1878, 43·85 do.

194. This station was occupied during the year by the 31st Regiment N.I. The sickness and mortality and the principal causes of sickness which affected the men are given in the following table compared with the mean results of former years :—

Digitized by Google

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Mean of 12 Years ending 1877.
Average strength ...	615		
Total admissions ...	267	434·1	957·7
Daily sick	10·8	17·5	32·0
Deaths in hospital ...	3	4·9	12·1
Do. out of do. ...	...	...	

Principal Diseases.	A.	D.	Ratio for 1878. A.	D.
Small-pox	...	...	...	...
Fever	125	...	203·2	...
Cholera	1	1	1·6	1·6
Rheumatism	21	...	34·1	...
Dysentery	14	...	22·7	...
Diarrhœa	5	...	8·1	...
Hepatic diseases ...	1	...	1·6	...
Venereal do. ...	3	...	4·8	...

Drainage ... ... Generally fair; but the drainage of the pensioners' lines requires improvement. The lines being situated on low ground, become flooded during the rains.

Water-supply ... ... Indifferent. Wells in the town contain brackish water. The tank on the parade ground has good water, but is subject to pollution from the drainage of the pensioners' lines. A tank containing good water and free from all pollution lies on the north of the cantonment, but it is too far away.

Epidemics ... ... Cholera and small-pox prevailed extensively among the civil population. In the district there were 24,134 cases of cholera, of which 17,644 proved fatal. Deaths from small-pox numbered 2,288. Cholera is supposed to have been imported by pilgrims from Pooree and Juggernauth. A sort of quarantine was established by the Officer commanding with good results, no cases having occurred in the cantonment. Of small-pox a few cases occurred among the families and followers of the 31st Native Infantry.

Conservancy and sanitary condition. Sanitary condition of cantonment sudder bazaar unsatisfactory. Owners of houses were permitted to take earth from their compounds for building purposes and to fill up the excavations with refuse of all kinds. The cantonment latrines are well looked after; dry earth is used in them. There are only three public privies. The sweepings, night-soil, &c., from cantonment and private houses are removed by sweepers and buried.

Prices of food and meteorology. The season was on the whole favorable and the prices of food moderate. 44 inches of rain were registered against an average of 51 inches.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. Drainage from pensioners' lines should be diverted from the tank used for drinking purposes.

Sanitary works ... None.

General health ... Excepting the prevalence of cholera and small-pox, satisfactory on the whole.

Saint Thomas' Mount.

Latitude, 13° 0′.
Longitude, 80° 15′.
Height above sea, 40 feet.
Mean temperature, 81°.
Average rainfall, 57 inches.
Rainfall in 1878, 24 do.

Digitized by Google

195. The following batteries of Artillery occupied this station during the year for varying periods, and a detachment of the 39th Regiment Native Infantry, 182 strong, for the whole year:—

Europeans.	No. of Weeks.
C-6th Brigade, R.A.	43
O-1st do.	52
L-1st do.	4
12-8th do.	8
J-6th do. and Details	5

196. In the following table is given the sickness and mortality compared with the mean results of former years, and the principal causes of sickness which affected the health of the men:—

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength ...	313	182				
Total admissions ...	371	85	1,185·3	467·0	1,306·4	550·6
Daily sick	22·34	2·07	71·3	11·3	63·8	20·6
Deaths in hospital ...	5	...	15·9	...	22·3	7·9
Do. out of do. ...	...	...	...	...		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	...	...	...	...	...	...
Fevers	38	...	33	...	121·4	...	181·3	...
Cholera	...	...	...	...	...	...	...	...
Rheumatism	3	...	2	...	9·6	...	10·9	...
Dysentery	19	...	2	...	60·7	...	10·9	...
Diarrhœa	10	...	4	...	31·9	...	21·9	...
Hepatic diseases ...	17	2	...	...	54·3	6·4	...	...
Venereal do. ...	111	...	4	...	354·6	...	21·9	...

Drainage ... ... Satisfactory.

Water-supply... ... Generally good; obtained from wells.

Epidemics ... ... None.

Conservancy and sanitary condition. The cantonment was kept fairly clean. Regimental latrines well attended to; dry earth is used in them. There are 13 public privies, one to every 1,200 people. Sweepings, night-soil, rubbish, &c., from cantonment removed by conservancy carts. Conservancy of private houses carried out by private arrangements.

Prices of food and meteorology. Season was favorable. The lingering effects of the famine were still felt a little, but the prices of good were moderate. 24 inches of rain fell, being somewhat below the average.

Cantonment rules ... In force. 67 women on the register. The introduction of the rules appears to have had no beneficial effect on the health of the European troops. More clandestine prostitution takes place, which the most stringent police cannot control.

Suggestions for sanitary improvements. Quarrying on the Mount Church property should be restricted, as deep pits are formed on the sides of the Mount which will become filled with refuse and rank vegetation.

Sanitary works ... None.

General health ... On the whole satisfactory.

Digitized by Google

Secunderabad.

Latitude, 17° 22′.
Longitude, 78° 35′.
Height above sea, 1,800 feet.
Mean temperature, 79°.
Average rainfall, 26 inches.
Rainfall in 1878, 46 do.

197. The following regiments (European and Native) garrisoned this station during the year:—

Europeans.	No. of Weeks.	Natives.	No. of Weeks.
B-B Brigade, R.A.	52	A Company, Sappers and Miners	52
H-1st do.	49	3rd Regiment P.L.I.	51
F-6th do.	52	H.M.'s 29th Regiment N.I. ...	52
14-8th do.	49	H M.'s 40th do. ...	52
2-16th Regiment	52	1st Regiment L.C.	52
1-21st Fusiliers	52	1st do. N.I.	52
H.M.'s 12th Lancers ...	52	Garrison	52
Garrison and Details ...	52		

198. The sickness and mortality compared with the mean of previous years are given below, together with the principal causes of admissions and deaths during the year:—

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength ...	2,471	3,158				
Total admissions ...	3,932	2,595	1,591·2	821·7	1,258·7	912·1
Daily sick	174·84	89·47	70·7	28·3	58·3	34·1
Deaths in hospital ...	55	50	22·2	15·8	24·7	11·0
Do. out of do. ...	7	2	2·8	0·6		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	1	...	...	...	0·3	...
Fevers	937	9	1,441	9	379·2	3·6	456·3	2·8
Cholera	18	12	24	13	7·2	4·8	7·6	4·1
Rheumatism	95	...	96	1	38·4	...	30·4	0·3
Dysentery	395	10	81	1	159·8	4·0	25·6	0·3
Diarrhœa	335	1	70	2	135·6	0·4	22·1	0·6
Hepatic diseases ...	176	11	7	...	71·2	4·4	2·2	...
Venereal do. ...	666	...	89	1	269·5	...	28·1	0·3

Drainage ... ... Satisfactory. Requires improvement. Patches of wet cultivation and several small tanks exist which become marshes in the hot weather.

Water-supply ... ... From wells and tanks, but pronounced indifferent by analysis.

Epidemic ... ... Cholera prevailed throughout the year, attaining its highest point of severity in April and May. Among the Native troops the 1st Regiment N.I. suffered most. The origin of the disease was traced by the Medical Officer to the week's tour of duty of the Native troops at the Residency, this being confirmed by the families who remained in the lines having suffered very little. Among the European troops there were 18 cases and 12 deaths, the largest number occurring in the 2-16th Regiment, viz., 12 cases and 9 deaths. Among the Native troops there were 24 cases and 13 deaths, the 1st Regiment contributing the largest number, viz., 10 cases and 2 deaths. In the 40th Regiment there were 6 cases and 4 deaths. No steps were taken to prevent the introduction of the disease into the cantonment as it was impossible to do so.

Digitized by Google

Conservancy and sanitary condition. Sanitary state of bazaar is fair. Conservancy of the cantonment and latrines is carefully looked after by an establishment maintained for the purpose. A system has been introduced, which will ensure the latrines, compounds, and backyards of private houses being periodically visited and cleansed by Municipal servants. Dry-earth system of conservancy is fully carried out in the regimental and hospital latrines. The refuse waters of private houses run into several small drains leading to the main drain which empties itself into the Hussain Saugar Tank.

Prices of food and meteorology. The climate was unfavorable to health. An excess of rainfall gave rise to malarious fevers. 46 inches of rain fell against an average of 26 inches. Food was abundant, but prices were rather high owing to large exportations.

Cantonment rules ... In force. 257 women were on the register. There was an increase of venereal diseases among the troops. Crowds of famine-stricken women wandered about the country and spread the disease.

Suggestions for sanitary improvements. Drainage works should be constructed in the neighbourhood of marshes, and rank vegetation should be carefully kept down.

Sanitary works ... Nothing of importance. 1,478 yards of drains were cleaned and repaired. Plans have been submitted for the improvement of the drainage of the station generally. Trees are being planted in vacant spots and in the vicinity of the barracks and lines, and some other works were executed.

General health ... With the exception of the prevalence of cholera and fevers the general health on the whole may be said to have been fair.

Seetabuldee.

Latitude, 21° 10′.
Longitude, 79° 9′.
Height above sea, 939 feet.
Average rainfall, 41 inches.
Rainfall in 1878, 62·61 do.

199. Detachments of H.M.'s 33rd Regiment, 8th Regiment Native Infantry and 5th Regiment Native Infantry for five weeks only were stationed at Seetabuldee during the past year.

200. The following table shows their sickness and mortality compared with the results of former years :—

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength	48	449				
Total admissions	105	659	2,187·5	1,467·7	1,253·3	1,447·9
Daily sick	1·86	17·59	38·7	39·1	55·9	39·7
Deaths in hospital	...	7	...	15·6	13·6 (both rows)	7·1 (both rows)
Do. out of do.	...	...	...	...		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	13	1	...	...	28·9	2·2
Fevers	29	...	270	3	604·2	...	601.3	6·6
Cholera	...	...	1	1	...	...	2·2	2·2
Rheumatism	1	...	47	...	20·8	...	104·7	...
Dysentery	4	...	33	...	83·3	...	73·5	...
Diarrhœa	5	...	19	...	104·2	...	42·3	...
Hepatic diseases	2	...	1	...	41·6	...	2·2	...
Venereal do.	22	...	2	...	458·3	...	4·4	..

Digitized by Google

Drainage ... ... Of the lines indifferent on account of their low position.
Water-supply ... ... From wells; of fair quality.
Epidemics ... ... Cholera and small-pox prevailed both among the troops and civil population.
Conservancy and sanitary condition. Bazaars are kept fairly clean, but they are badly arranged. The regimental latrines are kept in good sanitary condition; dry earth is used in them. Sweepings, &c., are removed by conservancy carts.
Prices of food and meteorology. Climate on the whole healthy, and food was abundant though prices were somewhat high. Sixty inches of rain fell against an average of 41·3.
Cantonment rules ... Not in force.
Suggestions for sanitary improvements. None.
Sanitary works ... A new well was sunk near the Infantry Lines.
General health ... Satisfactory.

Shoaygheen.

Latitude, 18° 0′.
Longitude, 96° 45′.
Average rainfall, 157 inches.
Rainfall in 1878, 92·09 do.

201. A detachment of the 17th Regiment Native Infantry for three weeks and another of the 41st Regiment Native Infantry for forty-seven weeks occupied this station during 1878. There was not much sickness among them. The following table shows the health-condition of the men compared with former years:—

—	Native Troops.		Ratio per 1,000 Strength. 1878.	Ratio per 1,000 Strength. Mean of 12 Years ending 1877.
Average strength	115			
Total admissions	219		1904·3	1993·3
Daily sick	8·28		72·0	69·7
Deaths in hospital	1		8·7	11·8
Do. out of do.	...		...	
Principal Diseases.	**A.**	**D.**	**Ratio for 1878. A.**	**Ratio for 1878. D.**
Small-pox	...	...	...	...
Fevers	159	...	1382·6	...
Cholera	...	...	...	...
Rheumatism	8	...	69·8	...
Dysentery	6	...	52·2	...
Diarrhœa	14	1	121·7	8·7
Hepatic diseases	...	...	...	...
Venereal do.	...	...	...	...

Drainage ... ... Good.
Water-supply ... ... Good from wells.
Epidemics ... ... None.
Conservancy and sanitary condition. Sanitary condition of latrines is fair. Dry earth is used, but not efficiently carried out. Refuse, &c., from private houses and cantonments is removed and deposited in a jungle at a distance.

Digitized by Google

Prices of food and meteorology. ... Climate rather unhealthy. Prices of food were moderate. The rainfall was deficient, only 92 inches fell against an average of 148 inches.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. None.

Sanitary works ... Nothing of importance. Drains and wells were kept clean, roads were repaired, and jungle and weeds cleared around barracks.

General health ... Unfavorable. Malarious fevers prevailed.

Sambalpur.

Latitude, 21° 21′.
Longitude, 83° 45′.
Average rainfall, 66·1 inches.
Rainfall in 1878, 42·23 do.

202. This is a small station and was occupied by the Left Wing of 2nd Regiment Native Infantry, 306 strong, during the whole year. Below is given the sickness and mortality among the men and the average results of former years :—

—	Native Troops.		Ratio per 1,000 of Strength. 1878.	Mean of 12 Years ending 1877.
Average strength	306			
Total admissions	301		983·7	1204·1
Daily sick	8·18		26·7	35·2
Deaths in hospital	2		6·5	11·2
Do. out of do.	1		3·3	
Principal Diseases.	**A.**	**D.**	**Ratio for 1878. A.**	**D.**
Small-pox	...	...	...	...
Fevers	105	1	343·1	3·3
Cholera	...	...	...	...
Rheumatism	26	...	84·9	...
Dysentery	9	...	29·4	...
Diarrhœa	4	...	13·0	...
Hepatic diseases	1	...	3·3	...
Venereal do.	14	...	45·7	...

Drainage ... That of the lines generally good, but of the station indifferent owing to its situation.

Water-supply ... Of fair quality from wells.

Epidemics ... None among the troops, but cholera prevailed among the civil population.

Conservancy and sanitary condition. Sanitary condition of bazaars and regimental and private latrines satisfactory. There are no public privies. Sewage from private houses is conducted by drains to a field.

Prices of food and meteorology. Season unfavorable. There was great heat and deficient rainfall; only 42 inches of rain fell, being below the average, but prices of food were moderate.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. None.

Sanitary works ... None.

General health ... Excepting the prevalence of cholera, satisfactory on the whole.

Digitized by Google

Seroncha.

Latitude, 18° 50′.
Longitude, 80° 2′.
Average rainfall, 42·9 inches.
Rainfall in 1878, 51·36 do.

203. A detachment, 174 strong, of the 8th Regiment Native Infantry was stationed here for the whole year. The sickness and mortality among them are given below:—

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 12 Years ending 1877.
Average strength	174		
Total admissions	141	810·4	1428·7
Daily sick	6·86	39·4	45·9
Deaths in hospital	3	17·2	9·3
Do. out of do.	...	...	

Principal Diseases.	A.	D.	Ratio for 1878. A.	Ratio for 1878. D.
Small-pox	1	...	5·7	...
Fevers	75	1	431·0	5·7
Cholera	...	...	...	...
Rheumatism	8	...	45·9	...
Dysentery	13	...	74·7	...
Diarrhœa	3	...	17·2	...
Hepatic diseases	1	1	5·7	5·7
Venereal do.	2	...	11·5	...

Drainage ... ... The lines being situated on the summit of a ridge, natural drainage is good.

Water-supply ... ... Obtained from wells in the lines; of good quality.

Epidemics ... ... In June there was an outbreak of cholera among the civil population, supposed to have been imported from the Nizam's Dominions. The troops were prevented from visiting the bazaar and communicating with the civil population. No cases occurred among them.

Conservancy and sanitary condition. Bazaars are kept fairly clean. There are no public privies. The latrines in the hospital are well looked after; dry earth is used in them. The filth, &c., from private houses is removed by sweepers.

Prices of food and meteorology. An excess of rainfall caused some ague and rheumatism. 51 inches of rain fell against an average of 43 inches. Prices of food were moderate.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. Jungle on the south should be cleared.

Sanitary works ... Nothing of importance. A good deal of jungle was cleared on the north and north-east side.

General health ... On the whole satisfactory.

Tonghoo.

Latitude, 18° 47′.
Longitude, 96° 57′.
Height above sea, 300 feet.
Mean temperature, 79°.
Average rainfall, 69 inches.
Rainfall in 1878, 61 do.

Digitized by Google

204. The regiments which occupied this station during the year are shown below:—

Europeans.	No. of Weeks.	Natives.	No. of Weeks.
8/8th Brigade R.A.	52	4th Regiment N.I.	10
9/8th do.	52	17th do.	1
L. W. 44th Regiment and Details.	52	33rd do.	33
		41st do.	45

205. In the following table the principal causes of sickness during the year are given and the sickness and mortality are compared with the average of former years:—

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength	398	704				
Total admissions	430	746	1080·4	1059·6	1010·3	969·4
Daily sick	19·30	28·51	48·4	40·5	49·5	44·3
Deaths in hospital	13	10	32·6	14·2	} 16·2	15·8
Do. out of do.	1	1	2·5	1·4		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio per 1,000 of Strength. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	...	...	...	...	...	...
Fevers	81	2	172	1	203·5	5·0	244·3	1·4
Cholera	1	1	5	2	2·5	2·5	7·1	2·8
Rheumatism	3	...	17	...	7·5	...	24·1	...
Dysentery	51	3	49	2	128·1	7·5	69·6	2·8
Diarrhœa	38	...	106	1	95·5	...	150·5	1·4
Hepatic diseases	36	4	...	...	90·4	10·0	...	...
Venereal do.	59	...	3	...	148·1	...	4·2	...

Drainage ... ... Good; chiefly surface drainage.

Water-supply ... ... Obtained principally from wells; of good quality.

Epidemics ... ... None. Cholera broke out in four boats among the 41st Regiment Madras Native Infantry on date of its arrival at the station (16th February). The men and families were not allowed to enter cantonment, but were kept in quarantine till all traces of the disease disappeared among them.

Conservancy and sanitary condition. The latrines—public and regimental—are kept fairly clean. Dry-earth system is adopted in the European and not in the Native latrines. The sanitary condition of the bazaars and station was good. Sweepings, rubbish, night-soil of the station and private houses are removed daily by cantonment carts.

Prices of food and meteorology. The climate was unusually hot and trying. 61 inches of rain fell, being 8 inches below the average. Food was abundant and cheap. Rice was sold at 32 lb. per rupee, but animal food was scarce and dear.

Cantonment rules ... In force. 16 women on the register. Very little venereal disease contracted at the station among the troops, which is attributed to the great care taken in thoroughly curing the women before their discharge from hospital.

Suggestions for sanitary improvements. Jungle growth, of which there is a large quantity still within cantonment limits, should be removed to improve the sanitary condition. The work will be taken after the rains in 1879, when it is expected that funds will be available.

Digitized by Google

Sanitary works ... A considerable quantity of jungle has been cleared from the north and west side of cantonment. A latrine that got burnt was rebuilt, and 3 latrines were repaired. Several roads were repaired, 5 old wells were closed, a railing was put up along the river-bank as a protection to passengers, the lock hospital palisade was repaired and the cattle pound and a cook-house were rethatched and repaired.

General health ... On the whole satisfactory. Nothing unusual to note except that the weather was unusually hot. Beriberi and general debility prevailed among the Native troops, attributed to their having no animal food issued in their rations, and exposure to the damp night air during their guard duties.

Thayetmyo.

Latitude, 20° 18′.
Longitude, 92° 46′.
Height above sea, 240 feet.
Mean temperature, 80°.
Average rainfall, 46 inches.
Rainfall in 1878, 36·5 do.

206. Of European troops the K/1st Brigade Royal Artillery and the 44th Regiment with details from the 11-8th were located for the whole year in this station. Of Native troops the 6th and 32nd Regiments occupied it; the former for fifteen, and the latter for thirty-seven weeks. The principal causes of sickness which affected the European and Native troops are given in the following table, with the sickness and mortality compared with the average results of twelve previous years :—

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength ..	618	604				
Total admissions ...	761	538	1231·3	890·7	1215·1	600·3
Daily sick	29·18	16·00	47·2	26·4	46·2	25·8
Deaths in hospital ...	8	3	12·9	4·9	} 20·8	9·5
Do. out of do. ...	3	...	4·8	...		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	...	...	...	...	...	...
Fevers	200	...	130	...	323·6	...	215·2	...
Cholera	2	2	1	1	3·2	3·2	1·6	1·6
Rheumatism	25	...	49	...	40·4	...	81·1	...
Dysentery	31	...	26	...	50·1	...	43·0	...
Diarrhœa	51	...	13	...	82·5	...	21·5	...
Hepatic diseases	37	1	...	...	59·8	1·6	...	...
Venereal do.	54	...	6	...	87·3	...	9·9	...

Drainage ... ... Satisfactory.
Water-supply ... ... Fairly good; obtained from wells.
Epidemics ... ... None. A few sporadic cases of cholera occurred among the civil population. Among the troops 2 cases in the 44th Regiment on the 27th and 29th April, both proved fatal.

Conservancy and sanitary condition. Sanitary condition of bazaars and station fairly good. The regimental latrines are well conserved; dry earth is used in them. There are no public privies for the Native civil population, of whom

Digitized by Google

there were 1,206 in the cantonment. Sweepings, refuse, &c., from station and private houses are daily carted away to the jungle and buried.

Prices of food and meteorology. There was a deficient rainfall and the weather was unusually hot, having a depressing effect on the Europeans. Only 36·5 inches of rain fell against an average of 47·2. Prices of food were moderate.

Cantonment rules ... In force. Twenty-three women were on the register. Stricter rules are required for a more efficient working of the Act.

Suggestions for sanitary improvements. The construction of four public latrines in the Sudder bazaar was recommended.

Sanitary works ... None.

General health ... Satisfactory.

Trichinopoly.

Latitude, 10° 52′.
Longitude, 78° 46′.
Height above sea, 250 feet.
Mean temperature, 83°.
Average rainfall, 35 inches.
Rainfall in 1878, 26·54 do.

207. The regiments which occupied this station during the year are shown below, and the sickness and mortality are given in the table following compared with the mean results of former years :—

Europeans.	No. of Weeks.	Natives.	No. of Weeks.
L/1st Brigade R.A.	52	6th Regiment N.I.	35
Detachment, 43rd Regiment L.I....	39	19th do.	48
Do. 67th Regiment ...	12	32nd do.	10
		38th do.	52
		Garrison	52

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength ...	269	1872				
Total admissions ...	365	1133	1356·8	605·2	1348·0	614·5
Daily sick	17·89	42·25	66·5	22·5	71·1	19·1
Deaths in hospital ...	11	17	40·8	9·0	17·9	11·2
Do. out of do. ...	3	1	11·1	0·5		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	...	...	..	...	...	...
Fevers	58	1	381	3	215·6	3·7	203·5	1·6
Cholera	3	2	9	5	11·1	7·4	4·8	2·6
Rheumatism	19	...	75	...	70·6	...	40·0	...
Dysentery	19	1	68	1	70·6	3·7	36·3	0·5
Diarrhœa	13	...	35	...	48·3	...	18·7	...
Hepatic diseases	13	1	5	...	48·3	3·7	2·6	...
Venereal do.	90	...	41	...	334·5	...	21·9	...

Drainage ... ... Satisfactory, by street-drains and water-courses.

Water-supply ... ... From wells; of good quality. Water is also obtained from irrigation channels and tanks of doubtful quality, as the channels pass through cultivated lands and are liable to receive impurities.

Digitized by Google

Epidemics ... ... Cholera prevailed in the beginning, and cases of small-pox occurred throughout the year among the civil population, causing 55 deaths. There was no small-pox among the troops. Of cholera 134 deaths occurred among the civil population, and among the troops there were 12 cases and 7 deaths. Two cases and 1 death occurred in the L/1st Brigade Royal Artillery, 1 case and 1 death in the detachment 67th Regiment, 1 case and 1 death in the 19th Regiment Native Infantry, and 8 cases with 4 deaths in 32nd Regiment Native Infantry, which was in the station for only ten weeks in the first quarter.

Conservancy and sanitary condition. The sanitary condition of the station and bazaars was unsatisfactory. The conservancy is attended to by the Municipality by an establishment maintained for the purpose. The regimental latrines are kept clean; dry earth is used in them. There are about six public latrines for every 1,000 of population, which are well conserved. Sweepings, rubbish, night-soil, &c., are removed by municipal direction and sold as manure.

Prices of food and meteorology. The climate was favorable and prices of food were moderate. Second-sort rice was sold at 17¼ lb. per rupee. There was a partial failure of the north-east monsoon. 26·5 inches of rain were registered, being 9 inches below the average.

Cantonment rules ... In force. 85 women on the register. Working of the rules satisfactory.

Suggestions for sanitary improvements. None.

Sanitary works ... A shed in the beef market and one in the fort market were constructed; the construction of Beemanaikpolliem tank was completed; two temporary privies were built; the fort market, leper hospital, cholera sheds, night-soil depôt sheds, shed at travellers' bungalow, Municipal Office, a culvert, a lamp-post and several roads and latrines were repaired; tanks, wells, and drains were cleaned out and improvements made to the Municipal Hospital.

General health ... Satisfactory.

Trichoor.

Latitude, 10° 32′.
Longitude, 76° 17′.

208. This is a small station and only a detachment of the 26th Regiment Native Infantry garrisoned it throughout the year. The principal causes of sickness are given below, and the sickness and mortality contrasted with the results of former years:—

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Mean of 12 Years ending 1877.
Average strength	165		
Total admissions	71	430·3	445·4
Daily sick	2·34	14·1	18·1
Deaths in hospital	...	...	6·3
Do. out of do.	1	6·0	

Principal Diseases.	A.	D.	Ratio for 1878. A.	D.
Small-pox	...	...	...	...
Fevers	14	...	84·8	...
Cholera	...	...	...	...
Rheumatism	1	...	6·0	...
Dysentery	8	...	48·4	...
Diarrhœa	2	...	12·1	...
Hepatic diseases	...	...	...	...
Venereal do.	3	...	18·1	...

Digitized by Google

Drainage ...	... Satisfactory.
Water-supply ...	... Good, obtained from wells.
Epidemics ...	.. None.
Conservancy and sanitary condition.	Sanitary condition of bazaars and station was satisfactory. The regimental latrines were well attended to; dry earth is used in them. There are no public latrines. Sweepings, rubbish, &c., are carted to a distance and buried.
Prices of food and meteorology.	Climate was favorable and prices of the different articles of consumption were fair. No rain register is kept.
Cantonment rules	... Not in force.
Suggestions for sanitary improvements.	None.
Sanitary works	... None.
General health	... On the whole satisfactory.

Vellore.

Latitude, 21° 56′.
Longitude, 79° 14′.
Average rainfall, 36·4 inches.
Rainfall in 1878, 42·92 do.

209. The 14th and 25th Regiments Native Infantry occupied this station during the year; the former for forty-five and the latter for six weeks. In the following table the sickness and mortality are compared with the mean results of previous years, and the principal causes of sickness are given:—

—	Native Troops.		Ratio per 1,000 of Strength. 1878.	Mean of 12 Years ending 1877.
Average strength	633		...	...
Total admissions	184		290·7	592·2
Daily sick	9·19		14·5	25·7
Deaths in hospital	13		20·5	21·4
Do. out of do.	1		1·6	
Principal Diseases.	**A.**	**D.**	**Ratio for 1878. A.**	**D.**
Small-pox	1	...	1·6	...
Fevers	37	5	58·4	7·9
Cholera	4	1	6·3	1·6
Rheumatism	5	...	7·9	...
Dysentery	10	1	15·8	1·6
Diarrhœa	4	1	6·3	1·6
Hepatic diseases	...	...	...	...
Venereal do.	23	...	36·3	...

Drainage ...	... Of the cantonment generally is fair, but that of the lines defective.
Water-supply ...	... Obtained from certain tanks and wells of fair quality; but the water generally in the town is brackish.
Epidemics ...	... None.
Conservancy and sanitary condition.	Sanitary condition of the bazaars and station was fair. It is attended to by the Municipality. Conservancy of the regimental latrines is defective. Dry earth is not used. The public latrines are well looked after and cleaned regularly. Night-soil, sweepings, and rubbish, &c., are removed and disposed of by the Municipality.
Prices of food and meteorology.	Climate was favorable, and the prices of food were fair. 42·9 inches of rain fell during the year against an average of 44 inches.
Cantonment rules	... Not in force.
Suggestions for sanitary improvements.	Dry-earth system of conservancy should be adopted in the latrines.
Sanitary works	... None.
General health	... Satisfactory.

Digitized by Google

Vizagapatam.

Rainfall in 1878, 76·2 inches.

210. The European Infantry Veteran Company details, with the 7th Regiment Native Infantry and a Native garrison, 65 strong, occupied this station for the whole year. Their sickness and mortality are given below compared with former years:—

—	British Troops.	Native Troops.	Ratio per 1,000 of Strength. 1878. British Troops.	1878. Native Troops.	Mean of 12 Years ending 1877. British Troops.	Mean of 12 Years ending 1877. Native Troops.
Average strength	56	699				
Total admissions	20	453	357·1	648·0	471·7	710·4
Daily sick	0·9	36·2	16·0	51·8	21·9	40·4
Deaths in hospital	5	7	89·3	10·0	22·3	11·6
Do. out of do.	1	...	17·8	...		

Principal Diseases.	British Troops A.	British Troops D.	Native Troops A.	Native Troops D.	Ratio for 1878. British Troops. A.	British Troops. D.	Native Troops. A.	Native Troops. D.
Small-pox	...	...	1	1	...	...	1·4	1·4
Fevers	...	...	118	...	...	...	168·8	...
Cholera	...	...	...	...	...	...	...	...
Rheumatism	...	...	26	...	...	...	37·2	...
Dysentery	...	...	27	...	...	...	38·6	...
Diarrhœa	2	1	8	1	35·7	17·8	11·4	1·4
Hepatic diseases	...	...	...	...	...	...	...	...
Venereal do.	...	...	15	...	...	...	21·4	...

Drainage ... ... Good by V-shaped drains.

Water-supply ... ... Of fair quality; obtained from wells.

Epidemics ... ... None among the troops; some cholera prevailed in the town in the latter part of the year.

Conservancy and sanitary condition. Sanitary condition of bazaars and cantonment was fair, but that of the town in some parts unsatisfactory. The regimental latrines are kept in good order; dry earth is used in them. There are about 36 public latrines in the town, 1 to every 950 of population. The sweepings, rubbish, night-soil and sewage from private houses are removed under Municipal direction to a distance. Part of street sewage is conducted by drains into the back-water or the sea.

Prices of food and meteorology. Climate was favorable. Prices of food were high. 76 inches of rain fell against an average of 45 inches. Heavy rain fell in October and December.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. None.

Sanitary works ... A V-shaped drain, 70 yards in length, is under construction. Several drains were repaired and wells deepened and cleaned to improve the water-supply.

General health ... General health of the troops was satisfactory, but that of the town population was indifferent owing to scarcity and high prices of food.

Digitized by Google

Vizianagram.

Latitude, 18° 21′.
Longitude, 83° 32′.
Average rainfall, 45 inches.
Rainfall in 1878, 60 do.

211. Three Native regiments occupied this station during the year for varying periods, viz., the 7th Regiment for five, the 17th Regiment for forty-two, and the 41st Regiment for two weeks. The sickness and mortality are given in the following table compared with the average of former years :—

—	Native Troops.	Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 12 Years ending 1877.
Average strength	566		
Total admissions	371	655·5	686·9
Daily sick	14·07	24·8	31·9
Deaths in hospital	4	7·0	11·2
Do. out of do.	1	1·7	

Principal Diseases.	A.	D.	Ratio for 1878. A.	Ratio for 1878. D.
Small-pox	...	...	...	...
Fevers	177	...	312·7	...
Cholera	4	...	7·0	...
Rheumatism	24	...	42·4	...
Dysentery	22	...	38·8	...
Diarrhœa	6	...	10·6	...
Hepatic diseases	1	...	1·7	...
Venereal do.	10	...	17·6	...

Drainge ... ... Fair ; natural and artificial.

Water-supply ... ... Obtained from tanks and wells ; of good quality.

Epidemics ... ... Cholera prevailed somewhat among the civil population. 4 cases occurred among the troops, all of which recovered.

Conservancy and sanitary condition. Sanitary condition of cantonment was fair, but that of the Native town requires improvement. The regimental latrines are kept clean. Dry earth is used in them. Sewage from the lines is removed to a distance; that of private houses is buried in pits. There are 20 public latrines in the town which are attended to by the Municipality.

Prices of food and meteorology. Climate was unfavorable ; excessive heat was followed by an excess of rainfall, causing destruction of crops and scarcity of food. 60 inches of rain fell against an average of 40 inches.

Cantonment rules ... Not in force.

Suggestions for sanitary improvements. Wells should be cleaned and deepened, and all the drains should be covered.

Sanitary works ... Two new drains were constructed.

General health ... Unsatisfactory.

Wellington.

Latitude, 10° 25′.
Longitude, 77° 5′.
Height above sea, 6,000 feet.
Average rainfall, 46·75 inches.
Rainfall in 1878, 53·20 do.

212. This is a Convalescent Depôt for British troops on the Nilgiris. The sickness and mortality are given in the following table contrasted with the experience of former years, as well as the principal diseases treated during the year :—

—	Her Majesty's Convalescent Depôt.		Ratio per 1,000 of Strength. 1878.	Ratio per 1,000 of Strength. Mean of 12 Years ending 1877.
Average strength	407			
Total admissions	427		1049·1	1366·0
Daily sick	22·5		55·2	78·5
Deaths in hospital	5		12·2	16·9
Do. out of do.	...		...	
Principal Diseases.	**A.**	**D.**	**Ratio for 1878. A.**	**Ratio for 1878. D.**
Small-pox	...	...	...	...
Fevers	120	...	294·8	...
Cholera	...	...	...	...
Rheumatism	8	...	19·6	...
Dysentery	33	...	81·7	...
Diarrhœa	15	...	36·8	...
Hepatic diseases	15	1	36·8	2·4
Venereal do.	59	...	144·9	...

Drainage	Good. Natural features of the station are particularly favorable to effective drainage. No improvements are required.
Water-supply	Good from springs.
Epidemics	A few cases of cholera occurred in the bazaars; none among the troops.
Conservancy and sanitary condition.	Sanitary condition of cantonment and bazaars was good. The latrines were well attended to and kept clean. Dry-earth is used in the regimental latrines. There is one large public latrine with 19 seats. Sweepings, rubbish, night-soil, &c., are removed by conservancy carts.
Prices of food and meteorology.	Climate was favorable and prices of food were at average rates. 53·2 inches of rain fell against an average of 50·5 inches.
Cantonment rules ...	In force. 48 women on the register. Working of the rules satisfactory.
Suggestions for sanitary improvements.	A lock hospital should be built in the Wellington bazaars, and the water-channel in the bazaar should be lined with stone.
Sanitary works ...	A malarious, marshy piece of ground near the soldiers' gardens was converted into a small lake by throwing a bund across the narrow part of the valley.
General health ...	Satisfactory.

213. Besides the stations noted above, detachments of some regiments shown below were located at Trevandrum, Lovedale and Nicobars for varying periods of the year. Their strength, sickness and mortality are given in the following table :—

Digitized by Google

	Trevandrum.		Lovedale		Nicobar.				Ratio per 1,000 of Strength.							
—	Detachment, 37th Regiment N. I.		F Company, Sappers and Miners.		Detachment, 15th Regiment N. I.		Detachment, 23rd Regiment N.I.		Detachment, 37th Regiment N. I.		F Company, Sappers and Miners.		Detachment, 15th Regiment N. I.		Detachment, 23rd Regiment N. I.	
Number of weeks resident ...	51		49		8		45									
Strength	84		75		59		46									
Total admissions	46		118		24		384		547 6		1573·3		406·8		8347·7	
Daily sick	1·32		7·36		3·02		6·21		15·6		98·1		51·2		134·8	
Died in hospital	1		...		...		...		11·9		...		...		...	
Do. out of do.	...		...		...		...		...		...		...		...	
	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fevers	6	...	48	...	22	...	360	...	71·4	...	640·0	...	372·8	...	7826·1	...
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheumatism	2	...	4	...	1	...	...	...	23·8	...	5·3	...	17·4	...	...	...
Dysentery	2	...	2	...	...	...	2	...	23·8	...	2·6	...	...	...	43·5	...
Diarrhœa	2	...	2	...	...	...	2	...	23·8	...	2·6	...	...	...	43·5	...
Hepatic diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Venereal do.	3	...	...	...	...	...	1	...	35·7	...	...	...	...	...	21·7	...

SECTION V.

CIVIL.

HEALTH OF PRISONERS IN JAILS AND ABSTRACT OF SANITARY NOTES OF MUNICIPALITIES AND LOCAL FUND CIRCLES.

HEALTH IN JAILS.

General remarks on sickness and mortality.

214. The effects of the famine year in regard to the poorer classes are well exemplified in the sanitary statistics of the jails during 1878. Although the mortality in jails was not so high in 1878 as in 1877, it was, especially in the famine area, distressingly great, and shows in a remarkable manner how severely the vitality of the population had been affected by the long continued dearth of food. Jail statistics have this advantage over the vital statistics of the general population, that they are absolutely trustworthy in regard to the numbers under observation, and they throw a light on the condition of the poor subjected to chronic starvation, which is wanting in the mortuary returns of the general population.

Increase and decrease of Jail population.

At the end of 1877 the number of prisoners remaining in jail was 24,088. During 1878 45,687 prisoners were received into the Madras Jails and 50,154 were discharged or died; and at the end of the year the numbers undergoing imprisonment had fallen to 19,621.

The decrease of prisoners was as follows:—

Liberated	39,483
Transferred	7,769
Transported beyond seas	128
Escaped	21
Died in hospital	2,677
Do. out of do.	9
Executed	67
Total ...	50,154

Digitized by Google

Strength, sickness and mortality.

215. The medical returns of the year show an average strength of 21,364. The numbers fell lowest in the month of May, and rose again in July, August and September, but fell perceptibly towards the end of the year. The numbers admitted into hospital were 20,177, and the total deaths in hospital 2,681, or 4 more than shown in figures of the Inspector-General of Jails above quoted.

Comparison with former years.

216. The ratio of admissions and deaths to strength is shown in the following table, contrasted with the ratios for a series of years:—

Years.	Ratio of Admissions.	Ratio of Deaths.
1861-62	1502·6	93·0
1862-63	1319·0	89·4
1863-64	1373·6	107·6
1864-65	1491·1	101·5
1865	1290·6	126·3
1866	1249·7	124·5
1867	1012·4	63·9
1868	869·1	33·8
1869	804·7	41·8
1870	735·2	26·5
1871	779·9	17·9
1872	681·1	22·2
1873	599·8	28·3
1874	714·1	26·6
1875	752·6	38·7
1876	703·6	42·4
1877	971·3	175·4
1878	944·4	125·4

217. As might have been expected, the sickness and mortality in jails was heaviest in the early months of the year, and was the direct result of the food scarcity in 1877. In January, for instance, the total deaths in hospital were 431, but in April the numbers fell to 164. It has already been noticed that the food scarcity in Southern India again showed itself in May, June and July 1878, and that the death-rate of the general population was distinctly increased by this return of scarcity and high prices. The jail returns illustrate very clearly this rebound of the famine. From May to September the numbers began again to increase, and from July to September there was a distinct rise in the jail mortality.

218. Heavy as the mortality in jails has been during the year, there is this satisfactory feature in connection with it, that the death-rate in December was not one-half so high as it was in January, and the condition of the prisoners remaining was on the whole improving.

219. The sickness and mortality has been higher in the district than in the central jails, and this result was certain in districts affected by food scarcity. In some of the central jails the sickness and mortality were not at all high as the following figures show:—

—	Ratio of Admission per 1,000 of Strength.	Daily Sick.	Deaths.
Vellore	367·3	14·9	17·3
Rajahmundry ...	862·5	65·4	21·7
Cannanore	713·0	28·7	64·2
Trichinopoly ...	256·7	10·5	43·5
Coimbatore	809·0	46·7	116·5

220. The Salem Jail, which is both District and Central Jail, had a mortality of 213·8 per mille, Bellary 279 per mille, Coimbatore 384, Cuddapah 156·3, Kurnool

Digitized by Google

345·3, Madura 248, Trichinopoly 106·0, Vizagapatam 133·9. In the Madras Penitentiary, Tinnevelly, Chingleput, Guntoor, and Masulipatam Jails the mortality was not on the whole above the average.

Remarks on principal diseases.

221. Epidemic cholera was not generally prevalent in jails; outbreaks occurred during the year in Bellary, Berhampore, Kurnool, Madura, Russelkonda, Tellicherry, Tranquebar and Vizagapatam Jails. In all these localities the disease appeared in the free population prior to its outbreak in the jails. The total number of cases treated was 262, of which number 110 died.

Small-pox.

222. Isolated cases of small-pox appeared in seventeen jails, and altogether 45 cases were treated with 5 deaths. It spread only in Madura Jail, where the vaccination of prisoners had been so ill kept up as to call for animadversion in my inspection notes of December 1877. Subsequently the jail population has been properly vaccinated.

Fevers.

223. Fevers chiefly of the intermittent variety were very prevalent in jails, as well as amongst the civil population. Of the total admissions 62 cases are put down as typhoid, with 10 deaths; these all occurred in the beginning of the year, and were returned from the jails noted in the margin. 402 cases are returned as continued fever with 11 deaths, and 3,998 cases as intermittent fever with 101 deaths, and 79 cases as remittent fever with 17 deaths. Fevers were prevalent in jails in the early months of 1878, and went down to a minimum in the month of June, but became more numerous in the last five months of the year. The jail experience goes to confirm that of the mortuary registration of the civil population, and the facts in reference to the military stations, that the year 1878 was markedly malarious and unhealthy for the Native population.

Madura.
Cannanore.

224. But it is not in diseases of the zymotic class alone that the jails reflect the condition of the poor. It is especially amongst the class of disorders depending on privation and inadequate nutriment that the jail mortality has been so excessive, and that the condition of the people after famine is so accurately shown. The great losses in jails, and all the excessive mortality, has been due to the conditions brought about by famine.

Dysentery and Diarrhœa.

225. For all practical purposes the jail statistics of these two diseases may be grouped together, as they are in nearly every case due to those pathological effects of famine, wasting and degeneration of the mucous coats of the intestines. In the year 1878 3,500 cases of these disorders were treated in jail hospitals, and 925 of the persons treated died. The peculiar disease of the bowels due to starvation, when it does not immediately kill, is a malady very intractable to medical treatment. We know from the microscopical researches of Dr. D. D. Cunningham that the tissues concerned in the absorption of nutriment from food have undergone degeneration and death, and that such tissues when once destroyed are not renewed, and when the destruction has been complete life cannot be saved. In a great many cases of famine-stricken persons received into jails, the wasting and destruction of the intestinal tissues had been only partial, and careful dieting and medical treatment in these cases seemed to be of some service; but where the previous privation had been severe and long continued, medical science could do nothing more than alleviate present suffering, and postpone the fatal event. In the inspection of jails I have frequently observed men who had been months on good diet, but who had not regained flesh or strength. Such men are repeatedly in hospital for bowel disorders, and ultimately die of diarrhœa or dropsy. If these things occur in jails where the food is ample and the sanitary surroundings are under careful supervision, we may be quite sure that the same results follow in the general population, and that under whatever name the causes of death may be registered, the poorer classes have succumbed in large numbers to the sequelæ of famine. It is satisfactory to note with regard to these fatal bowel affections in jails that they were diminishing at the close of 1878. In the month of January 201 deaths occurred from bowel complaints, while in December the number of fatal cases had fallen to 44. With better seasons and abundance

Digitized by Google

of food, it is absolutely certain that the criminal classes, as well as all other sections of the Native population, will cease to suffer from the diseases of innutrition.

Dropsies.

226. The jail admissions from dropsies were numerous in the early months of 1878, and fell off during May and June, but increased again in July, and declined again in November and December. The total of admissions under this head was 573, and of deaths 281. The very fatal nature of the famine diseases ending in dropsy is shown by the fact that nearly one-half of the cases under treatment died. The total deaths from bowel complaints and dropsies in 1878 were 1,206, while in 1877 the numbers were 1,798.

Skin Diseases.

227. Under the heading of skin diseases is included all abscesses and ulcerations of the skin. Diseases of this class were specially prevalent and fatal amongst the poorer classes of the population in 1878, more so than during the earlier periods of the famine. The slightest abrasion of the skin would run into a foul and unhealthy sore, and so feeble was the vitality of the tissues in the famine victims, that sloughing and gangrene often set in and caused death. In the jail returns 348 deaths are returned under skin diseases against 122 in the preceding year. It is noticeable that deaths from ulcer and gangrene became most frequent in September, and continued high until the end of the year. The facts in regard to the great tendency to unhealthy ulceration and sloughing observed in jails were noticed also in the various famine-relief camps and works, and in civil hospitals devoted to the relief of the poor.

Scurvy, Atrophy and Anæmia.

228. The jail admissions from this class of disorders are for the most part shown under the more advanced stages of bowel diseases and dropsy, but 213 admissions and 29 deaths are thus classified. The scorbutic cachexia was well marked in most of the cases of privation seen in jails. The symptoms were relieved by proper diet, where the wasting process had not proceeded too far.

229. In the Coimbatore District and Central Jails a regular epidemic of aphthous stomatitis prevailed, which in my opinion was dependent in some degree on the scorbutic tendencies of the prisoners. Dr. Ogg's account of it is as follows :—

Special Report on an Outbreak of Ulcerative Stomatitis in the District Jail, Coimbatore.

[*Extracted from the Annual Medical Report.*]

The disease which has been most prevalent in the District Jail during the year, Aphthous stomatitis, has occasioned more than one-third of the total admissions into the District Jail Hospital. This affection has appeared in several distinct forms. In a large proportion of the cases the disease appeared first at the margins of the upper or lower gums, sometimes in front, sometimes under the molar teeth. Occasionally the whole gums were found congested, swollen and spongy, bleeding readily and appearing separated from the teeth, but in most cases the gums were perfectly normal except at the ulcerated spot, and entirely free from swelling, sponginess or discolouration. If treated early the ulcers healed readily, but if neglected from the remissness of the patients in reporting sick, ulceration spread rapidly along the margin of the gums, affecting in a short time the whole of the upper and lower gums. The ulcers were usually irregular in outline with raised margins, the membrane around being congested, swollen and œdematous. As the disease advanced the breath acquired a peculiar offensive odor, and salivation became profuse. In some cases the disease appeared first in the shape of white or yellowish-white patches on the lips, cheeks, palate, or tongue. On removing these patches the mucous membrane beneath was found abraded or ulcerated. In a third class of cases, which fortunately was not numerous, the disease assumed the form of "Gangrenous stomatitis" or "Cancrum oris." When these cases came under observation there was usually a circumscribed hard swelling in the cheek with surrounding œdema. The mucous membrane, which was red at first, became discoloured and gangrenous, and a slough formed which sometimes extended rapidly, involving the entire cheek. In a few cases portions of the lower jaw became carious or necrosed. In the two forms first described the disease was readily amenable to treatment. Under the frequent use of caustic (nitrate of silver or sulphate of copper) with antiseptic lotions of carbolic acid, &c., the affection usually healed rapidly.

The gangrenous form of the affection was, however, far more formidable. Sloughing extended in spite of the application of the strongest caustics, nitric or hydrochloric acid. In these cases chlorate of potash was given internally with iron, quinine, opium, &c., according to circumstances, full hospital diet, and alcoholic stimulants. In some of these cases an intractible form of diarrhœa or dysentery set in and carried off the patient.

Digitized by Google

It would be an interesting but difficult problem to determine how far a scorbutic taint in the blood may have acted as an exciting or perhaps predisposing cause of this affection. All the prisoners in jail got fresh vegetables daily and fresh meat three times a week, but many of them had been suffering before admission into jail from prolonged privation. In a certain proportion of the cases there were clear indications of scurvy in the discoloured, swollen and spongy appearance of the gums, but in the majority of those seen in the early stage of the disease, the gums were quite normal except at the ulcerated spots. Though it is highly probable that a scorbutic taint in the blood is a powerful predisposing cause of this affection, I am disposed to think that in some of its forms at least it is of parasitic origin, and that when fully developed it becomes infectious and spreads by contagion. In those cases (which were numerous) where the disease began as a simple spot of ulceration on gums otherwise normal, the irregular eroded appearance of the surface of the ulcer strongly suggested the idea of an external local exciting cause. The fact that in a large proportion of the cases ulceration appeared first along the margin of the gums or at the angles of the jaws, may be explained by the hypothesis that the food which usually lodges in those parts of the mouth, affords a favorable nidus for the development of the germs of the disease. That some local exciting cause was in operation is I think strongly corroborated by the fact that many men in good health, without any apparent scorbutic taint, were affected with the disease, and that some of the police constables on jail guard were attacked. Twice during the past year the temporary jail and the old District Jail buildings have been vacated in order that they might be thoroughly ventilated and fumigated. On both occasions this proceeding was followed by temporary benefit, and though the disease again manifested itself, this may have arisen from the fact that the experiment was not carried out long enough to ensure the thorough destruction of the disease germs. On the 13th December the occupants of the temporary and District Jails were again moved into tents, and this time they have been encamped at a distance from the jail; but it is doubtful if the supply of water in the tank near the encampment will hold out long enough to give the experiment a fair trial.

On the 23rd September lime-juice was issued on the recommendation of the Sanitary Commissioner, Madras, with undoubted benefit to the general health of the prisoners, but without as yet any marked diminution in the number of admissions from aphthous stomatitis. To the above report, which is extracted from the Annual Medical Report on the District Jail Hospital, I would beg to add that the men were kept in tents for about two months, and that before their return to jail aphthous ulceration had almost entirely disappeared from among them. During the three weeks preceding their return to jail only four cases of stomatitis occurred among the District Jail prisoners in the tents, whereas before these men were moved into tents the number of admissions averaged fifteen weekly. On the return of the prisoners to jail the number of cases of stomatitis began again to increase, showing the effect of some local cause, but the number of admissions never rose so high as they were before the men went into camp. Every measure likely to prove of service for the complete eradication of the disease is being carried out, including the daily inspection of the prisoners with a view to the early detection of the affection.

I am not, however, very sanguine of the entire disappearance of the disease, as I am disposed to believe, from what I have observed, that certain seasons of the year and certain states of the atmosphere favor its propagation.

Influence of Famine on Jail mortality.

230. The influence of famine on jail mortality is alluded to by nearly all the officials who furnish sanitary reports, and the following extracts will show that the lowered vitality of the people was the true explanation of the unusual mortality:—

Bellary.

"Five hundred cases of diarrhœa were treated, of which 225 died. General dropsy caused the admission to hospital of 150 persons, of whom 80 died. 122 cases of gangrene came under notice with 87 deaths. All these diseases occurred in people whose constitutions were utterly broken down by want. Most of the cases of diarrhœa were what is termed famine diarrhœa, the patients being unable to assimilate food. In the gangrene cases weak men were attacked with ulcers of various types and then the part perished."

Berhampore.

"The large mortality during the year is due to the badly-nourished state the prisoners were in on admission."

Calicut.

"The dearness and almost scarcity of food for some time past has contributed very much to the increase of crime, and to the very poor physical condition of the criminals on admission; hence the undue sickness and mortality."

Chittur.

"The sick rate and mortality were still high, due to the continued operations of some of the causes that gave rise to great sickness and mortality in 1877. The state of health of the majority of prisoners on admission was found to be indifferent or bad."

Digitized by Google

Coimbatore Central.

"The main cause of the unusual sickness and mortality is the poor physique of many of the prisoners admitted into jail during the past two years. Many of these men were, on admission into jail, suffering from organic diseases which rendered permanent recovery impossible, and they readily fell victims to attacks of diarrhœa, dysentery, or pneumonia."

Cuddalore.

"The unusual sickness and mortality which occurred during the earlier months of the year were occasioned by diseases of debility, principally chronic diarrhœa, and the subjects were almost entirely famine-stricken convicts.

Cuddapah.

"The enhanced sickness and mortality that occurred amongst the convicts were owing to the effects of the famine of the past year."

Kurnool.

"The unusual mortality has been caused by diseases which form the usual sequelæ of chronic starvation,—a condition to which the jail population had been subjected prior to admission."

Madura.

"The sickness and mortality has been due to the fact that a greater portion of the new arrivals were admitted suffering from dysentery, famine-diarrhœa, dropsy and extreme debility."

Nellore.

"Admission of many prisoners suffering from great privation, and from the diseases arising from it, and the prevalence in the district generally of malarious diseases."

Ootacamund (Native Jail).

"The heavy mortality was due to the number of famine-stricken received into jail, especially in the earlier part of the year;—almost all who died were received into jail in bad health."

Salem.

"The principal cause of the excessive sickness has been that a great number of prisoners were admitted to jail in a very low state of health caused by famine."

Tellicherry.

"The mortality has been considerably higher this year owing to many of the prisoners being admitted in a very bad state of health in consequence of the famine."

Trichinopoly (Central Jail).

"Bowel diseases, the result of privation previous to admission into jail. Mortality 17 out of 50.

Trichinopoly (District Jail).

"Privation preceding admission into jail. Of a total mortality of 37, no less than 25 were due to bowel diseases;—almost all were emaciated and weak."

Trichinopoly (Camp Jail).

"Bowel diseases resulting from privation previous to admission. Mortality 37 out of 63.

Vellore (Central Jail).

"No undue sickness. 11 deaths occurred during the year, the average strength having been 1,116. Of those who died 9 had been less than one year in the jail, and several of these on admission were in a very low state of health due to the late famine."

Vellore (Camp Jail).

"The low condition in which many were admitted, sufficiently accounts for the mortality. The total number of deaths was 20; of these 5 had been but a few days in jail, and 11 others less than six months."

Vizagapatam.

"A large percentage of prisoners were in very bad health on admission to jail, the result of starvation and bowel disorders from bad and insufficient food."

Palghat.

"Most of the prisoners who died were in a poor state of health on admission, having been weakened by privation."

231. In the last annual report it was noticed that in two jails within the famine area—the Madras Penitentiary and the Vellore Central Jail—there had been no undue mortality. The results of 1878 show also a low death-rate in these jails.

232. In many of the jails notwithstanding the temporary erection of huts, there was overcrowding of prisoners, but this was inevitable under the peculiar circumstances of the famine. Only 128 prisoners were transported to the Andamans, and owing to the scarcity of food, and prosecutions under the Salt Department, the jail population had not decreased so much as might have been expected.

Principal causes of sickness and mortality compared with former years.

233. The following table shows for a series of years the principal causes of mortality in jails, and it illustrates very well the effects of famine in 1877 and 1878 as compared with the results of former years:—

Digitized by Google

Years.	Death Ratio per Mille.				
	Cholera.	Dysentery.	Diarrhœa.	Dropsies.	Anæmia.
1861-62	26·3	8·5	14·6	...	...
1862-63	23·0	7·2	14·5	...	...
1863-64	15·6	16·5	17·5	...	...
1864-65	21·3	18·2	30·9	...	...
1865	30·0	12·8	22·7	...	...
1866	25·5	14·3	34·6	...	...
1867	0·8	8·8	10·5	5·3	12·1
1868	0·2	5·5	7·3	1·9	5·7
1869	4·3	6·6	7·3	3·3	2·4
1870	1·5	3·6	4·6	1·6	1·5
1871	0·7	2·9	2·3	0·8	0·3
1872	1·3	3·9	4·5	0·9	1·2
1873	0·1	5·9	6·0	2·5	0·4
1874	0·0	5·3	5·3	1·9	0·9
1875	4·1	6·4	7·7	3·5	0·9
1876	10·0	7·7	5·3	2·2	0·9
1877	25·7	32·1	50·1	5·8	2·0
1878	5·1	15·0	28·2	13·1	1·2

234. In the following table is shown the ratios of sickness and mortality to strength in each jail for seven years ending 1876, contrasted with the results of 1877 and 1878 separately. These figures show at a glance the great influence of the food scarcity on the mortality of the population:—

Jails.	Mean of 7 years ending 1876.			1877.			1878.		
	Admissions	Daily Sick.	Died.	Admissions	Daily Sick.	Died.	Admissions	Daily Sick.	Died.
Bellary	701·2	26·0	20·2	976·8	51·0	317·8	1360·7	107·3	279·1
Berhampore	664·7	28·9	47·0	545·1	24·1	79·4	667·6	27·0	166·1
Cannanore Central ...	658·6	32·2	36·0	962·7	63·5	110·5	713·0	28·7	64·2
Calicut	779·8	23·0	50·3	705·3	38·3	219·9	925·3	48·0	145·5
Chingleput	1508·7	54·7	11·6	1617·5	63·0	140·0	1195·9	59·2	20·1
Chittur	1304·3	44·0	30·4	2268·2	75·3	536·5	2131·5	99·9	187·9
Coimbatore Central ...	412·1	19·0	28·3	601·4	33·0	117·2	809·0	46·7	116·5
Do. District ...	1293·4	70·0	65·8	2099·8	94·6	657·2	3030·2	197·2	384·4
Cuddalore	778·8	25·1	18·6	745·3	17·9	76·2	434·1	16·9	75·2
Cuddapah	1431·5	38·5	41·4	855·6	28·7	119·7	2583·0	98·4	156·3
Guindy	1362·3	28·5	...	656·7	20·1	44·7	602·7	16·7	13·6
Guntoor	972·7	35·0	9·0	245·5	11·2	7·5	125·4	5·7	20·9
Her Majesty's Jail, Madras.	1259·2	24·0	...	2352·9	78·8	...	1952·3	86·1	47·6
Kurnool	1102·0	33·9	54·4	1355·6	38·9	307·0	1714·2	96·6	345·3
Madura	418·3	18·3	45·7	1334·2	47·7	300·0	1151·2	82·6	248·0
Mangalore	1161·2	43·6	48·3	1531·9	59·4	63·8	2375·5	88·8	84·5
Masulipatam	1000·0	38·4	...	442·7	19·2	7·6	201·4	10·7	7·1
Nellore	683·6	22·3	20·4	1265·4	44·3	195·5	1151·3	33·0	64·0
Ootacamund (European).	500·0	32·3	...	1375·0	37·9	41·6	1291·6	24·5	...
Do. (Native) ...	527·9	18·6	24·8	1101·8	50·2	57·3	1113·3	58·4	113·3
Palamcottah	477·1	17·2	38·5	458·7	11·0	26·7	209·8	10·9	26·7
Penitentiary, Madras ...	627·1	31·1	13·7	656·0	23·7	27·2	609·3	18·6	19·1
Rajahmundry Central ...	794·4	41·2	15·0	1067·5	69·0	23·1	862·5	65·4	21·7
Do. District ...	1095·7	45·3	31·9	1125·6	55·7	26·1	1087·5	58·3	32·3
Russelkonda	1178·9	35·6	21·0	1404·4	27·3	29·4	1283·1	34·1	42·1
Salem	392·7	15·8	18·0	1756·7	40·0	163·5	950·2	70·0	213·8
Tanjore	596·1	37·7	76·9	586·2	28·2	148·8	389·3	17·1	77·7
Tellicherry	739·7	30·4	27·3	651·7	25·9	71·3	596·7	18·3	88·7
Tranquebar	792·3	31·6	61·5	696·2	21·4	56·9	712·4	23·9	58·8
Trichinopoly Central ...	360·0	19·1	38·3	273·2	11·1	53·7	256·7	10·5	42·5
Do. District ...	709·9	31·4	45·8	418·1	21·5	115·1	441·1	24·1	130·0
Vellore Central ...	626·0	21·1	13·8	546·1	18·6	22·0	367·3	14·9	17·3
Vizagapatam	561·6	24·4	65·0	789·2	19·7	174·8	765·3	26·1	133·9
Palghat Fort ...	...	...	...	1553·0	60·1	165·4	894·4	41·8	120·1

Digitized by Google

MUNICIPALITIES.

235. The year 1878 opened with forty-nine Municipal towns on the list. During the year the "Towns Improvement Act" ceased to be enforced in one town and was introduced in another. From April 1878 Mettapolliem, in Coimbatore, ceased to be a Municipality, and Anakapalle, in Vizagapatam, was constituted a Municipal town.

236. The aggregate population of the forty-nine towns enjoying municipal privileges in the Madras Presidency, according to the census of 1871, was 1,620,480. The total births registered amounted to 41,133 (21,426 males and females 19,707). The deaths registered were 62,428 (males 32,950 and females 29,478). The ratios were, births 25·3, and deaths 38·5 per 1,000 of population.

237. In the preceding year 1877, a year of unusual distress and scarcity, with epidemic diseases most prevalent, the figures were, births 43,771 or 27·2 per mille, and deaths 110,888 or 69·1 per mille. The averages for the three previous years ending 1876 were 28·6 and 31·3 per mille respectively. It will be observed that the town birth-rate has fallen somewhat in 1878, though not to the same extent as the district birth-rates. The proportions of 1878 contrasted with those of the preceding year, and the three years' averages show that the town population was regaining its normal condition after the disastrous effects of the famine.

238. The ratio of births ranged from the low rate of 7·7 in Anantapur to 37·9 in Madras; but in Madras registration of births is more efficient and perfect than in the Mofussil towns, and its population no doubt was kept abnormally high by the events of the famine. The highest ratio of registered births among Mofussil towns is that of Tuticorin, viz., 37·8. The ratio of deaths ranged from 12·6 in Cannanore to 116·7 in Anantapur. The large proportion of deaths in the latter town is due chiefly to cholera, from which disease there were 118 deaths during the year.

239. The towns in the districts of the north, as Ganjam, Vizagapatam, and Godavari show a comparatively high death-rate. In these districts cholera and distress prevailed to some extent. There was a failure of the north-east monsoon of 1877 and fears were entertained of a severe famine, which happily did not occur. The towns in some of the famine districts of 1877, as Kurnool, Cuddapah, and Bellary, also show high death and low birth rates; in these also cholera prevailed largely, and the effects of the famine had not altogether passed away.

240. Taking the towns as a whole the general health of the population appears to have been fairly satisfactory and better than the preceding year of famine and pestilence. There was a considerable diminution in the prevalence of epidemic diseases and other affections caused by privation which enhanced the mortality of 1877. In the table below is given the principal diseases which caused the deaths in 1878 contrasted with 1877:—

Diseases.	Deaths.			
	1877.	Ratio per Mille.	1878.	Ratio per Mille.
Cholera	19,631	12·2	3,794	2·3
Small-pox	11,592	7·2	2,908	1·7
Fevers	14,049	8·7	14,435	8·9
Bowel-complaints	30,020	18·7	18,195	8·1
Injuries	1,667	1·0	1,011	0·6
Other causes	33,929	21·1	27,085	16·7

241. During the year 1878 a new form of sanitary report for Municipalities received the sanction of Government, giving more definite and specific information regarding the sanitary condition, drainage, water-supply, &c., of the towns, and also the estimated income and estimated expenditure for sanitary purposes and vaccination.

Digitized by Google

242. There has not been much done in the way of sanitary progress in regard to new works. With the limited means at their disposal the Municipalities have been able to do little beyond attending to the conservancy and cleansing of the towns, repairing wells, tanks, roads, drains, latrines, &c., and in some instances providing a few latrines, cinerators, dust-bins, wells, drains, &c. In some of the towns the arrangements, so far as the conservancy, water-supply, drainage and latrine accommodation are concerned are progressing, while in others they are not improving. Sanitary defects do exist in most of the Municipalities, but these can only be gradually remedied.

In the annexed table is given the estimated income and expenditure for sanitary purposes of each Municipality.

The net income of all the Municipalities in the Presidency returning a population of 1,620,480 amounted to Rs. 1,755,368, being at the rate of a little more than a rupee per head of population. Some Municipalities are rich, while in others the income is somewhat low. Excepting Ongole and Anakapalle, in which the provisions of the Towns Improvement Act have but recently been introduced, the income ranged from Rupees 3,247 in Gooty with a population of 6,730 to Rupees 5,61,882 in Madras with a population of 397,552, or excluding Madras and taking the Mofussil Municipalities only to Rs. 94,157 in Madura with a population of 51,987.

243. The aggregate amount set apart for sanitary purposes during 1878-79, was Rupees 7,05,352, giving a percentage of 40·1 on the total income. The percentage on the whole shows a fair allotment of the revenues for sanitation; but the rates vary considerably in the several Municipalities: thus in four towns they range from 10 to 20 per cent., in nineteen from 20 to 30, in thirteen from 30 to 40, in seven from 40 to 50, and in five from 50 to 60. One town, Kurnool, set apart 63 per cent. of its income for sanitary purposes during the year.

The following is a brief abstract of the sanitary reports received from each Municipality: —

Adeni.

Population, 22,723.

Drainage.

244. Masonry drains exist in the main streets. No house drains. Each house has a cess-pit which is periodically cleaned by the owners under municipal direction and the contents carried out of town and buried.

Water-supply.

245. From five wells for drinking purposes, reported to be good in quality and sufficient in quantity. For bathing purposes and washing cattle, from 49 wells of brackish water.

Conservancy and sanitary condition.

246. The town is kept fairly clean by a conservancy establishment of 22 sweepers, 11 toties, 4 peons, and 2 Inspectors. There are 10 public and 400 private latrines, the contents of which are removed in carts to a distance, and thrown on the fields for manure. The removal of the sweepings and rubbish is given out to contractors, who gather them outside the town and make use of them as manure during the rainy season. Additional toties are maintained for cleaning the private privies.

Sanitary works.

247. Six hundred and three yards of masonry side drains, one tunnel, and twenty dust-bins were constructed, and two wells, two latrines, and several streets and drains were repaired.

General health.

248. Indifferent. Cholera, fevers, and bowel-complaints prevailed severely and carried off 110, 550, and 438 persons respectively. Cholera was introduced into the town by return pilgrims from Humpi. It broke out on 7th May and continued till the 10th of July.

The effects of the famine had not altogether died out during the year; famine stragglers were still to be found in the town.

Digitized by Google

There were 1,299 deaths and 359 births registered during the year against 1,308 and 409 in 1877. 586 persons were vaccinated against 1,312. The large numbers recorded in these respects in 1877 is probably due to the famine.

Anantapur.

Population, 4,918.

Drainage.

249. Unsatisfactory. No house drains, all houses have sink pits. The surface rain water flows through side channels into a nullah, the contents of which flow into adjacent paddy-fields.

Water-supply.

250. From a tank and four wells; reported to be good.

Conservancy and sanitary condition.

251. The town is kept clean by a conservancy establishment of 1 inspector, 12 sweepers, 2 peons, and 2 carts. There are nine public latrines which are cleaned twice a day. The night soil is removed to a distance and buried. Sanitary condition reported to be fair.

Sanitary works.

252. Nothing of importance. In the Civil Dispensary a contagious shed, two latrines, a bath-room, and a dead-house were constructed. In the town a latrine was repaired and the side channels and main drain was cleaned out.

General health.

253. Unsatisfactory. Cholera and fevers were the prevailing diseases, causing 118 and 126 deaths respectively, out of a total of 574. There was a great falling off in the registration of births; only 38 children were registered as having been born during the year against 152 in the previous year 1877. Vaccination also had fallen off; 31 operations only were performed against 300 in 1877. This may be owing to the services of the Municipal Vaccinator having been dispensed with and the work deputed to the Taluk Vaccinator. The Commissioners, however, intend appointing a separate vaccinator for the town.

Anakapalle.

Population, 13,044.

Drainage.

254. Very unsatisfactory. No house drains in existence.

Water-supply.

255. Of fair quality; obtained from sixteen wells and a tank.

Conservancy and sanitary condition.

256. The town is kept clean by an adequate conservancy establishment. There are eight public latrines, (three mat latrines, and five built with mud) all of which were destroyed by the cyclone of 1878.

Sanitary works.

257. Nothing to speak of. Only a few road-side drains were cut. Anakapalle is a new Municipality, the Act having been introduced into the town only in April 1878.

General health.

258. Indifferent. 396 deaths and 223 births were registered during the year. Cholera and fevers were the prevalent diseases, causing 90 and 202 deaths respectively. 132 persons were vaccinated during the year.

Digitized by Google

Bellary.

Population, 51,766.

Drainage. 259. Natural drainage fair.

Water-supply. 260. Good, from Alipore Lake.

Conservancy and sanitary condition. 261. A conservancy establishment is maintained to keep the town clean. The sweepings and rubbish are removed in box carts far out of the town and burnt in cinerators. There are 22 latrines in the town which are cleaned twice a day. The sanitary condition was far from satisfactory owing to famine stragglers still wandering about the town.

Sanitary works. 262. Nothing of importance. Five cinerators were built.

General health. 263. Unsatisfactory. 14,700 persons were treated in the Civil Dispensary, the principal diseases being fevers, dropsy, diarrhœa, dysentery and ulcers. Cholera prevailed in the town; it commenced on the 25th April and terminated about the middle of September, and 285 deaths were recorded during this period. 2,564 deaths and 534 births were registered during the year against 2,471 deaths and 465 births in 1877. Fevers caused 512 and dysentery 591 deaths. The number vaccinated was 1,359 against 2,013 in 1877, when large numbers of famine paupers were operated upon.

Berhampore.

Population, 21,670.

Water-supply. 264. From two tanks reserved for drinking purposes deriving their source from rain and surface drainage from fields. Other tanks and wells are also used, but they are not reserved.

Drainage. 265. Stone drains are laid along the principal streets which empty themselves in the adjacent fields. No system of house drainage; most of the houses have cess-pits which are emptied daily by the scavengering establishment.

Conservancy and sanitary condition. 266. The town is kept clean by a conservancy establishment of 64 sweepers, 14 toties, and 12 carts. The sweepings and refuse are carried outside the town and burnt. Sanitary condition of most of the houses unsatisfactory, and some of the owners were prosecuted for keeping dirty and offensive backyards. There are six permanent and one temporary latrine in the town.

Sanitary works. 267. Seventy yards V-shaped cut-stone drains were constructed and existing drains repaired. 4,655 yards of roads were repaired and 700 yards are in progress of repair.

General health. 268. Unsatisfactory. Distress prevailed to some extent during the year and large numbers were treated in the hospital mostly for "privatio" and diseases incidental to famine. Cholera which broke out in November 1877 continued on till June 1878. In the latter year 412 persons fell victims to it. Fevers also prevailed to some extent and caused 121 deaths. 989 deaths and 425 births were registered against 943 deaths and 485 births in 1877. 404 persons were vaccinated against 193 in 1877.

Bimlipatam.

Population, 8,744.

Water-supply. 269. Good and abundant from wells.

Drainage. 270. Fair. V-shaped drains run along the principal streets and empty into the sea. No regular system of house drainage exists.

Digitized by Google

271. The conservancy of the town is attended to by ten male and nineteen female sweepers, two drain flushers and two carts. There are no public latrines. Sanitary condition fair.

Conservancy and sanitary condition.

272. Satisfactory. Occasional cases of cholera occurred. 285 deaths and 127 births were registered during the year. In 1877, 299 persons died and 172 children were born. 442 persons were vaccinated against 394 in 1877.

General health.

Calicut.

Population, No. 47,962.

273. From wells of fair quality; and a large tank containing very good water supplies one section of the town.

Water-supply.

274. Side drains or gutters are cut in the principal streets which receive the drainage from the streets and houses and empty themselves into the sea by means of certain large natural nullahs.

Drainage.

275. Conservancy is attended to by an establishment of 59 sweepers and ten carts. The sweepings are daily removed and thrown into certain old excavations and covered over with a thick layer of earth. There are six public latrines, the contents of which are taken in air-tight carts and buried in a large pit at a distance from the town towards the beach. Sanitary condition fair.

Conservancy and sanitary condition.

276. A large tank was cleaned out and put into thorough repair at a cost of Rs. 3,286. This tank was formerly a reservoir of stagnant filthy water; but the water may now be used for drinking purposes. Rs. 500 were also spent for the improvement of another tank used for bathing purposes.

Sanitary works.

277. With the exception of a few cases of cholera and small-pox which prevailed somewhat extensively the general health of the town was fair; 1,256 deaths were registered against 1,471 in 1877; small-pox contributed 320, fevers 94, and bowel-complaints 30 to the number. The births registered numbered 697, against 834 in 1877 and 1,553 persons underwent vaccination against 1,342 in the year previous.

General health.

Cannanore.

Population, 31,358.

Water-supply.

278. Good; obtained from private and public wells.

Drainage.

279. Masonry and side drains kept in good condition. The drainage flows into the sea by means of a large nullah.

280. The town is kept clean by an adequate conservancy establishment. There are numerous dust-bins in the town; the sweepings and rubbish are collected in them and removed by hired carts. There are eleven permanent latrines along the beach. The contents of the latrines are removed by carts specially designed for the purpose to a distance beyond the cantonment limits. The sanitary condition of the town was satisfactory.

Conservancy and sanitary condition.

281. Two culverts were renewed, 12 tunnels were renewed and repaired, and 5 public wells were cleaned. The slaughter-house and small-pox shed were re-thatched and put in order, and about 250 avenue trees were planted.

Sanitary works.

282. Good. A few isolated cases of cholera and small-pox occurred. 398 deaths and 462 births were registered against 703 deaths and 540 births in 1877, fevers contributing the largest number 77. 1,270 vaccine operations were performed against 1,388 in 1877.

General health.

Digitized by Google

Chicacole.

Population, 15,587.

283. Principally from the river, the supply being abundant and of fair quality. The water is filtered before use. A few wells in the town are also used.

Water-supply.

Drainage.

284. Most of the streets have good drains and is well attended to.

Conservancy and sanitary condition.

285. The town is kept very clean by an establishment of sweepers and carts. The sweepings and rubbish, &c., are removed to a distance from the town and sold as manure. There are five latrines, one pucka built in brick and chunam, and four of mud. They are not much resorted to. Sanitary condition of town satisfactory.

Sanitary works.

286. One hundred and twenty-six yards of cut-stone drains were constructed and existing drains repaired. Some prickly-pear bushes were removed, and the roads which were destroyed by the late floods in the river are being repaired.

General health.

287. Satisfactory. Cholera in a mild form prevailed during the first six months of the year and caused 41 deaths. 586 persons died during the year and 271 children were born. In 1877 the figures were 537 and 258 respectively. Fevers caused 105 deaths and bowel-complaints 154. 313 vaccine operations were performed against 230 in 1877.

Cocanada.

Population, 17,839.

Water-supply.

288. The canal water of the Godavari is used for drinking purposes. It is brought in covered channels into the town and reserved in four tanks, and has the reputation of being good.

Drainage.

289. Owing to the low site of the town it is difficult to drain it efficiently. There are no stone drains, but side cuttings along the roads which generally have no vent. There is no house drainage; the refuse waters after domestic use run sometimes into cess-pits, but oftener into the streets where it is dried up, or sinks into the ground.

Conservancy and sanitary condition.

290. The town is swept and cleaned twice a day by an establishment maintained for the purpose, and the sweepings are carted away outside the town. There are 13 public and 141 private latrines. The latter are cleaned by municipal toties and the contents are carried in baskets outside the town and buried. Sanitary condition of the town fairly good.

Sanitary works.

291. Surface drains were cleaned and repaired and a culvert was built. The water conduits were kept clean and in good repair. The walls of the latrines which were destroyed by two cyclones were repaired. A wooden bridge was completed, the streets were raised and levelled, roads repaired, tanks and wells cleaned, and a few other minor works were executed. 100 avenue trees were planted to replace those destroyed by the cyclone.

General health.

292. Unsatisfactory. The season was most exceptional, great and oppressive heat followed by continuous rain ending with two cyclones. Epidemic disease was very prevalent, and large numbers of famished and vagrant poor wandered into the town, which unfavorably influenced the public health. Cholera and small-pox prevailed to some extent, causing 180 and 253 deaths, respectively, out of a total of 998 deaths. The births registered during the year numbered 491, and 2,032 persons were vaccinated. In 1877 the figures in these respects were deaths 697, births 564, and number vaccinated 927.

Digitized by Google

Cochin.

Population, 13,840.

Water-supply.

293. Good drinking water is brought by private parties from a distance of 16 miles and sold to such as can afford to buy it. The poor obtain their water from tanks in the outskirts of the town, which is reported to be good. The water from wells in the town owing to their proximity to cesspools and to saline impregnation from the sea and backwater is not fit for drinking.

Drainage.

294. Consists of street drains having communication with house drains. These are periodically cleaned and kept in good order.

Conservancy and sanitary condition.

295. The cleaning of the town is performed by an establishment of twenty-four sweepers, three toties, and five overseers. The sweepings are sold to persons holding lands as manure. There are eleven wooden latrines with thatch roof, and one tiled, placed over tidal water; and four masonry latrines, the contents of which are removed twice a day. There are also nine sentry-box latrines with a hole under each placed over loose sand which is removed daily. Sanitary condition on the whole fair.

Sanitary works.

296. None.

General health.

297. Cholera and small-pox prevailed to some extent, causing 125 and 165 deaths, respectively, and considerably increasing the number of deaths over that of the preceding year; with this exception the general health was fair. 658 deaths and 353 births were registered against 317 deaths and 405 births in 1877. The vaccine operations were 1,559 against 519.

Coimbatore.

Population, 35,310.

Water-supply.

298. From the River Noyel; stored in reservoirs in the town. Quality good. Water from wells generally brackish.

Drainage.

299. The natural drainage good; but the drains in the town generally require improvement.

Conservancy and sanitary condition.

300. Great attention is paid to the conservancy of this town. The establishment consists of seventy-five scavengers and toties, and twenty-four carts. The refuse and sweepings are collected daily and burnt in cinerators, of which there are twenty; and the ashes mixed with the contents of the latrines are formed into compost and used in the public gardens and also sold as manure. There are thirty-four latrines, of which twelve are thatched and two on the trench system. Sanitary condition of the town on the whole good; but that of the backyards of private houses to which Municipal servants are denied access is unsatisfactory. A scheme was proposed to remedy the defect in this respect, but from want of funds to carry out the project it was deferred.

Sanitary works.

301. Rupees 794 were spent during the year for improvement in drainage and water-supply, and Rupees 374 on other sanitary works. Four new conservancy carts were also made and five bullocks purchased.

General health.

302. Though better than the year 1877 the general health cannot be said to have been good in the past year. The influences of the famine were still felt by the poorer people. The diseases most prevalent were fevers and bowel-complaints, from which there were 171 and 103 deaths respectively. The total number of deaths registered was 540 and of births 733 against 2,477 deaths and 965 births in 1877. 1,177 persons were vaccinated against 1,679 in the preceding year.

Digitized by Google

Chilambaram.

Population, 15,519.

Water-supply.

303. Obtained from wells and tanks fed by irrigation channels, principally from the Varanam Lake. The quality of the water thus supplied is good and plentiful. The wells in the town are brackish.

Drainage.

304. None.

Conservancy and sanitary condition.

305. The conservancy of the town is indifferently attended to, and the sanitary condition unsatisfactory. There are only four temporary latrines for the whole town. Nuisances are as a matter of course committed in the streets and corners, and the gardens attached to houses are used as latrines. The conservancy establishment consists of 13 carts and 24 sweepers, costing Rupees 5,037. The sweepings, &c., are stored out of the town and sold as manure every year.

Sanitary works.

306. None. Cocoanut trees were planted in four streets as avenues.

General health.

307. The health of the town was on the whole fair; cholera and small-pox prevailed somewhat, causing 32 and 65 deaths respectively. Some distress was felt during the year, being the lingering effects of the famine. A festival at which 70,000 people assembled passed off without the occurrence of any disease. The total deaths registered was 339 and births 178, against 305 deaths and 219 births in 1877. The number vaccinated was 500. In 1877 it was 520.

Combaconum.

Population, 44,444.

Water-supply.

308. Abundant. Obtained from branches of the River Cauveri and tanks fed from the same source and good in quality. Care is taken to preserve the sources of drinking water from pollution, but not always with success.

Drainage.

309. No regular system either of street or house drainage. Cess-pits exist in private houses and along some of the roads.

Conservancy and sanitary condition.

310. The conservancy of the town is attended to by an establishment of 8 Inspectors, 47 sweepers and toties, 2 tank watchmen, and 31 carts at a cost of Rupees 9,556. The refuse is carted away by a contractor, who pays 1 pie for every cart load, to some distance out of the town. There are 17 latrines; some of them are simple open enclosures, and others have roofs and seats. The night soil is removed in carts.

311. Sanitary condition indifferent. Cess-pits are to be found in all private houses and along some of the roads. The number of latrines is insufficient, as nuisances are everywhere committed.

Sanitary works.

312. Nothing of importance, 2 tunnels were widened, and a wall enclosing the burning ground is in progress. Other works are in contemplation such as the construction of a slaughter-house, ash-tubs, &c. A survey has been made with the view of draining the town.

General health.

313. Fair. 1,820 deaths and 1,330 births were registered during the year against 2,220 deaths and 1,389 births in 1877. The principal diseases were cholera (141), fevers (322), and bowel-complaints (388). Cholera is reported to have been imported from Caverypatam by a man who was attacked there coming into the town and dying. Small-pox caused 76 deaths. The number vaccinated amounted to 895 against 1,131 in the preceding year.

Digitized by Google

Conjeveram.

Population, 37,327.

Water-supply. 314. From tanks and wells, not of very good quality.

315. Street drains consist of side cuttings of sufficient fall. Surface drainage of houses run into these street cuttings, but the washings from kitchens and bathing places flow into the backyards and soak in the soil.

Drainage.

316. The streets are swept once a day and the sweepings are accumulated in six depôts and sold by public auction. The conservancy establishment consists of 34 sweepers, 2 toties, 2 nuisance peons, and 1 inspector. There are seven public latrines of mud wall enclosures with trenches inside. Sanitary condition of town fair.

Conservancy and sanitary condition.

317. Two culverts were built, and a bridge was repaired. The supply channel from the "Lalakal" Tank was deepened and five tanks filled with spring water. Some overgrown bushes were removed and the roads which they blocked up were widened and levelled; three new latrines were built and two repaired. The water-supply scheme which the Commissioners have had nine years in hand has not advanced much.

Sanitary works.

318. On the whole good, notwithstanding the presence of large numbers of famine-stricken poor still in the town. The diseases mostly prevalent were small-pox, fevers, and bowel-complaints which caused 58, 226 and 531 deaths respectively. The total deaths registered numbered 1,063 and births 726, and the number who underwent vaccination was 1,100. In 1877 the figures in these respects were deaths 3,386, births 697, and number vaccinated 1,233.

General health.

Cuddapah.

Population, 16,275.

319. Obtained principally from wells, said to be of good quality and sufficient in quantity. Some of the residents use also the river channel water.

Water-supply.

320. The principal streets have side cuttings on either side, the drainage of which leads to the irrigation channel outside the town. The smaller streets have no drains of any kind. The drainage of the backyards of private houses run into the streets.

Drainage.

321. A conservancy establishment is maintained to keep the town clean at a cost of Rupees 11,236. The sweepings and rubbish for some time during the year were used to fill up three large ditches in the town; the ditches having been filled and covered with a layer of sand the sweepings are now carted to a place outside the town and there burned in pits. 75 dust-bins exist and 42 latrines, 18 of which are pucka built and the others are mere mud wall enclosures. Dry earth is used in them. Besides these there are also six urinals placed at the corners of lanes which are largely used by the people; all are cleaned once a day. The night soil is carried a mile out of the town, where it is buried in trenches and from time to time sold. During the year Rupees 160 were realised by the sale; but there does not appear to be much demand for the manure. The town was kept clean, and the sanitary condition is fair.

Conservancy and sanitary condition.

322. The construction of a new drain leading from the jail was commenced; twenty narrow lanes were opened and widened; a travellers' bungalow and a site for a new Hindu burial-ground beyond municipal limits were purchased, three temporary sheds were constructed in the market, the construction of three permanent double latrines was commenced, and six urinals were built.

Sanitary works.

Digitized by Google

323. Was better than the year preceding. Intermittent fever, however, of a severe type prevailed and caused 691 deaths among the poor and laboring classes. Cholera also prevailed somewhat in the latter half of the year and struck down 101 persons. Of the other deaths "bowel-complaints" were the cause in 164 instances. The total deaths was 1,586 and births 386 against 1,143 deaths and 349 births in 1877.

General health.

Very little vaccination appears to have been done during the year, only 231 operations were performed against 1,078 in 1877. The high figure of the preceding year is due to large numbers of famine poor in relief houses having been operated upon. More attention is required to vaccination in this town.

Coonoor.

Population, 3,058.

324. From perennial springs brought into the town in open channels; abundant and of very good quality, though liable to be muddied by every passing shower, owing to the absence of suitable reservoirs. Drinking-water usually taken from springs.

Water-supply.

325. Natural drainage by open trenches, the town being built on steep slopes. Some houses are provided with small saucer-shaped drains, but the majority have channels cut into the soil for drainage purposes. An improved system of drainage for the bazaar is much needed.

Drainage.

326. The town is kept clean by a conservancy establishment. The sweepings, rubbish, and contents of latrines are carted away daily to a central depôt, whence they are removed by contractors to distant coffee estates. The rubbish is burnt in a cinerator and the ashes mixed with the night soil. Sanitary condition of town good.

Conservancy and sanitary condition.

327. Nothing of importance. The existing roads were repaired and a new one opened; the latrines were put in repair and shrub and brushwood near road sides were cleared.

Sanitary works.

328. Good. Fevers and bowel-complaints were the diseases most prevalent; 46 and 98 deaths respectively occurred from these causes; 210 deaths and 84 births were registered during the year. In 1877 there were 472 deaths and 86 births; 647 vaccine operations were performed against 763 in 1877. A few deaths from cholera occurred in August and September.

General health.

Caroor.

Population, 9,378.

Water-supply.

329. From the river and wells in the town; of good quality.

330. None at present. Street drains are being constructed. Backyards of private houses not well attended to, owing to difficulties in the way of inspection.

Drainage.

331. The town is swept twice daily and the sweepings and rubbish are removed to a distance; some are sold and some used as manure in the new municipal garden. There are four public latrines, the contents of which are used in the Municipal garden. Sanitary condition fair.

Conservancy and sanitary condition.

332. Rupees 780 were spent on drains; the well in the market was cleaned, and it is in contemplation to dig a new well. The latrines, slaughter-house, and hospital were repaired.

Sanitary works.

Digitized by Google

333. Fair. After August fevers prevailed somewhat, and caused 137 deaths. General health. 213 deaths and 150 births were registered during the year against 329 deaths and 223 births in 1877; 272 persons were vaccinated; in 1877, 315 operations were performed.

Cuddalore.

Population, 40,290.

Water-supply. 334. From wells and Guddalum river; of good quality. In Old Town, Cuddalore, the water is brackish.

335. Defective. Drainage. Masonry drains exist only in some parts of the town; in other parts side channels are cut along the side of the roads to carry off storm waters. The drainage of houses also is bad. Every house has an opening from the yard leading into the streets by which the liquid refuse is discharged into the main drains and streets.

336. The town Conservancy and sanitary condition. is kept fairly clean, 23 carts are maintained to sweep the streets and remove the collection from the dust-bins of which there are 247. The sweepings, &c., are sold to a contractor. There are 16 latrines, three of which are temporary. The night-soil is removed daily to a distance from the town and buried. The three temporary latrines are on the "trench system." Sanitary condition fair.

337. Drains were Sanitary works. repaired and side channels cut to carry off storm waters; one drinking water well was cleaned and two roads newly metalled. 28 new dust-bins were built and the old ones repaired, and some other minor works and repairs were executed during the year.

338. Fair on the whole. General health. Small-pox, fevers, and bowel-complaints prevailed somewhat. There were 975 deaths and 830 births registered during the year. The principal causes of death were cholera (48), small-pox (144), fevers (256), and bowel-complaints (164). The vaccine operations performed numbered 1,242. In 1877 the deaths were 1,175, births 1,153, and number vaccinated 1,554.

Dindigul.

Population, 12,865.

Water-supply. 339. From tanks and wells; of good quality. Well water is plentiful. Tank water becomes scarce when the usual rains fail.

Drainage. 340. Natural drainage is good from the peculiar configuration of the ground. Drainage of houses is being improved.

341. The town Conservancy and sanitary condition. is kept fairly clean. The sweepings and rubbish are removed outside the town and sold as manure. There are eight latrines, only one of which is covered, the others being walled in enclosures. They are cleaned daily and the contents buried in pits. Sanitary condition fair.

Sanitary works. 342. Nothing of importance. Latrines, &c., are undergoing repairs.

343. Good on the whole. General health. 238 deaths and 317 births were registered during the year. The principal diseases causing deaths were, fevers (79), and bowel-complaints (32). In 1877 there were 596 deaths and 370 births registered; 1,418 vaccine operations were performed against 7,267 in 1877, when large numbers of the famine poor were vaccinated in the relief camps.

Digitized by Google

Ellore.

Population, 25,487.

344. From tanks receiving their supply from the Godavari and Kistna canals, and from public and private wells. Water-supply is good and sufficient in quantity.

Water-supply.

345. There are masonry drains in the main streets leading into the Colar lake, and some into the irrigation channels. No house drainage, and the backyards of houses are mostly filthy, and much used by cattle.

Drainage.

346. The town is kept clean by an adequate establishment of conservancy servants. The sweepings and rubbish are removed daily, deposited outside the town, and sold as manure once a year. There are 125 dust-bins placed in different parts of the town. Of latrines there are at present only 15, of which 5 are temporary. Many of the latrines were destroyed by the heavy rains that fell at the latter end of the year. Sanitary condition of town not very satisfactory. The backyards of private houses are very dirty and cattle are kept in them.

Conservancy and sanitary condition.

347. Several irrigation channels were repaired and improved, and the side drains in the main road and streets were repaired. A new well was sunk, and several others repaired; and a few other minor repairs effected.

Sanitary works.

348. Indifferent. Famine stragglers still wander about the town in large numbers, and as a consequence, cholera and small-pox prevailed somewhat extensively, causing, 171 and 130 deaths respectively. In all 1,075 deaths and 712 births were registered. Fevers were the cause of 70 deaths and bowel-complaints of 113. 867 persons were vaccinated, against 795 in 1877.

General health.

Erode.

Population, 10,201.

349. From wells in the town, of good quality and from a channel of the Cauvery river. The richer inhabitants who can afford it get their water from the Cauvery about two miles distant.

Water-supply.

350. No regular system exists of drainage in the town or of private houses.

Drainage.

351. Conservancy indifferent. The town is swept once a day and the sweepings are deposited in different parts to fill up pits. There are only 12 sweepers and 6 carts for the whole town. There are 8 latrines of which 5 are mere mud wall enclosures. Eight toties and 2 carts are employed to remove the night-soil which is buried in trenches. Sanitary condition of the town is unsatisfactory and the backyards of private houses are dirty and require to be looked after.

Conservancy and sanitary condition.

352. Thirteen new culverts were built, and 50 old ones repaired. A new well was sunk, 58 dust-bins were constructed, the slaughter-house and latrines were repaired, and prickly-pear bushes about the town were removed.

Sanitary works.

353. The general health appears to have been good. No diseases of an epidemic nature prevailed. 166 deaths and 144 births were registered during the year. Fevers (47) and bowel-complaints (43) were the principal causes of death. In 1877 the total deaths were 2,573 and births 204. 299 vaccinations were performed, against 347 in 1877. In 1877 Erode was a great centre of famine relief which accounts for the heavy mortality in that year.

General health.

Digitized by Google

Gooty.

Population, 6,730.

Water-supply.

354. From tanks and wells, reported to be good.

Drainage.

355. Wide open drains exist on either side of the principal streets. The town being surrounded by hills, during heavy rains they get choked up with mud and sand and the drainage is inefficient. The drainage of private houses run into the street drains by a hole in the wall.

Conservancy and sanitary condition.

356. Sanitary condition of the town is indifferent. Only three carts are employed to remove the sweepings and one cart to remove the night-soil. The sweepings are carted to selected sites and there put up to auction sale. The night-soil is removed one mile from the town and buried in pits. There are nine latrines of which 6 are mere mud wall enclosures. All the latrines are in bad repair having been destroyed by the late heavy rains, and funds are wanting to put them in repair. Altogether Gooty is backward in sanitation, the people are very poor, and the finances of the Municipality very low.

Sanitary works.

357. None.

General health.

358. Unsatisfactory. Cholera, fevers, bowel-complaints and ulcers prevailed mostly. The health of the people was much deteriorated after the famine and they easily succumbed to disease; fevers broke out immediately after the heavy rains, and, owing to the impoverished state of the blood of many of the poorer classes by insufficient and indifferent food during the famine ulcers of a bad type broke out, soon assumed a gangrenous character, and in several instances proved fatal. 397 deaths and 54 births were registered during the year. The principal causes of death were—cholera (34), fevers (59), and bowel-complaints (52). In 1877 the total deaths registered were 454 and births 53.

Guntoor.

Population, 18,033.

Water-supply.

359. Good; from wells and tanks; deriving their supply from hill streams and rainfall.

Drainage.

360. Drainage is effected by side cuttings along the principal streets, running into fields out of the town.

Conservancy and sanitary condition.

361. The town is kept clean by an adequate staff of conservancy servants at a cost of Rupees 7,632. Numerous dust-bins abound in the town. The sweepings and rubbish, &c., are daily collected and stored for sale. There are eighteen latrines sixteen of which are pucka built. Sanitary condition of town, fair.

Sanitary works.

362. A tank was cleaned and deepened; prickly-pear removed and a new latrine built during the year.

General health.

363. Good. A few cases of small-pox occurred. The total deaths registered was 523 and births 410. The chief causes of death were—small-pox (39), fevers (65), and bowel-complaints (91). In 1877 the total deaths were 469 and births 402. 648 persons were vaccinated against 1,930 in 1877.

Digitized by Google

Kurnool.

Population 25,579.

Water-supply.

364. From irrigation channels of the Tungabadra river, of rather an inferior quality, the water being generally thick and muddy.

Drainage.

365. Most of the streets have drains, some rectangular and some V shaped; these are flushed daily. They empty themselves in the Tumbudra and Hindry. In such of the streets in which there are drains, house sewage flows into them; in other private houses there are cess pools, which are cleaned out as soon as they are filled.

Conservancy and sanitary condition.

366. Sanitary condition of the town is fair. The sweepings, &c., and night-soil are removed in air-tight receptacles by a staff of conservancy servants to a distance between the two rivers and there mixed together and sold as manure. Rupees 1,000 were realised by the sale during the year. There are thirty-three latrines, of these thirty-one are simple enclosed spaces. They are cleaned twice a-day and kept very clean.

Sanitary works.

367. Nothing of importance. A new latrine is in course of construction, and a few of the existing ones were repaired.

General health.

468. Indifferent after the famine. The diseases mostly prevalent were those following starvation and caused by an impoverished state of the blood, such as bowel-complaints, scorbutic-ulcers, &c. Cholera and fevers also prevailed somewhat. 2,310 deaths and 200 births were registered during the year against 4,329 deaths and 690 births in 1877. The principal causes of death were—cholera (351), fevers (935), and bowel-complaints (655). 322 vaccine operations were performed against 397 in 1877.

Madura.

Population, 51,987.

Water-supply.

369. The water-supply for this large town is obtained from tanks and wells. It is generally of very inferior quality. The town wells are sewage-polluted. A large pagoda tank fed by springs, resorted to by the people, contains water unfit for any purpose, and yet large numbers of persons may be seen around it bathing, washing their dirty clothes and their mouths, and sometimes swallowing the water.

Drainage.

370. Both of houses and streets very indifferent. Some of the streets and lanes are provided with masonry drains constructed some years ago, but these are so badly laid with imperfect levels that water stagnates in them

Conservancy and sanitary condition.

371. Although a conservancy staff is employed to keep the town clean, it cannot be said that the sanitary condition of the town is good. The conservancy of private houses and gardens is very defective; the privies are seldom cleaned, and heaps of rubbish exist in the gardens or backyards. There are fourteen latrines in the town, of which only four are pucka built. The latrines are too few in number, and as a consequence nuisances are committed all over the town. The sweepings and town refuse are removed every day to different parts outside the town and burnt, and with the contents of the latrines are sold as manure.

Sanitary works.

372. Ten temporary latrines and four dust-bins of stone were put up, and the Hospital Assistant's quarters, lying-in hospital and civil dispensary buildings were repaired.

General health.

373. Fair on the whole. Cholera, fevers and bowel-complaints were the prevailing diseases. Traces of the famine were still to be seen in the town and a large number of famine-stricken

Digitized by Google

patients were brought in by the police in the last stages of dropsy and dysentery. 2,542 deaths and 1,642 births were registered against 3,298 deaths and 2,346 births in 1877. The vaccine operations numbered 2,570 against 2,986 in 1877.

Mannargudi.

Population, 17,703.

Water-supply.

374. Of good quality; brought by the Municipality from the Vadavar river, twelve miles distant, in channels and stored in the numerous tanks in the town.

Drainage.

375. The surface of the town is flat, and beyond ditches and channels to carry off rain-water there is no regular system of drainage of streets or houses.

Conservancy and sanitary condition.

376. The conservancy is rather indifferent; only five carts are employed to keep the streets and town clean. There are no public latrines, and consequently the outskirts of the town are fouled.

Sanitary works.

377. None of importance. Some streets and lanes were repaired, and the repairs to the water-supply channel are in progress.

General health.

378. Fair on the whole. Fevers prevailed somewhat, and there were some cases of small-pox and cholera also. Most of the famine poor who were relegated to their villages were returning, bringing sickness with them. 461 deaths were registered against 627 in 1877; of these cholera was the cause of 41 deaths, small-pox 31, fevers 79, and bowel-complaints 86. The births registered numbered 479 against 579 in 1877. The number vaccinated was 744, showing an increase in number of operations of 267 over the preceding year.

Mangalore.

Population, 29,712.

Water-supply.

379. From wells; of good quality and sufficient in quantity, every house having its own well of good water. There are also a few public tanks, which are chiefly used for bathing and washing purposes.

Drainage.

380. The town stands on a slope, and the natural drainage is good. In the streets side cuttings are made, which lead to the backwater, to carry off the rain-water and surface drainage. Almost every house has a garden to which the refuse waters are led to irrigate the trees. Only rain-water finds its way into the side cuttings in the streets from private houses.

Conservancy and sanitary condition.

381. The town is kept clean by a staff of conservancy servants; six carts are employed to remove the sweepings, rubbish and night-soil, which are carried two miles out of the town and buried to be sold as manure. There are five public latrines, all pucka built; two are of wood, over the backwater. The contents of these are washed away by the tides in the river. The Municipality undertake the cleansing of 3,000 private privies also. The sanitary condition of the town is good.

Sanitary works.

382. None.

General health.

383. Good. Fevers (210) and bowel-complaints (85) were the prevailing diseases. 657 deaths and 619 births were registered, and 1,146 vaccine operations were performed. The numbers in 1877 were—deaths 1,472, births 601, and number vaccinated 8,240.

Digitized by Google

Masulipatam.

Population, 36,188.

Water-supply.

384. Good; obtained by masonry conduit from the Kistna canal.

Drainage.

385. Very poor. The low level of the town prevents drainage being effective: in many parts water accumulates. Some streets have side cuttings for the discharge of rain-water.

Conservancy and sanitary condition.

386. An establishment at a cost of Rupees 8,800 is maintained to keep the town clean. The sanitary condition of the town is far from satisfactory. Owing to the large area over which it extends, it is difficult to keep the streets clean. There are twelve public latrines on the dry-earth system, the contents of which are buried just outside the latrines within the town, a very objectionable practice. The backyards of houses and private privies are in a very filthy state. Croton plants and prickly-pear abound in the town, giving shelter for the commission of nuisances.

Sanitary works.

387. Several drains were cleaned and the water-supply conduits repaired at a cost of Rupees 1,552. Eight latrines were built and more are in course of construction.

General health.

388. Bad. Cholera, small-pox, fevers and bowel-complaints prevailed extensively. Out of a total of 968 deaths the mortality from these causes was cholera (252), small-pox (86), fevers (127), and bowel-complaints (49). The births registered numbered 844, and 1,531 persons were vaccinated. In 1877 there were registered deaths 740, births 494, and number vaccinated 654.

Mayavaram.

Population, 21,165.

Water-supply.

389. From the Cauvery river, which is generally good.

Drainage.

390. No regular system of drainage exists. Ditches are made on the sides of roads to carry off rain-water. Sewage from private houses flows into the gardens and does not find its way into the streets.

Conservancy and sanitary condition.

391. The town is kept fairly clean by an establishment maintained for the purpose. A few temporary latrines were built; but these are seldom used, the people resorting to domestic privies in their gardens, the accumulations of which they make use of as manure. The sweepings and rubbish are collected and burnt in cinerators and sold to cultivators.

Sanitary works.

392. A drainage tunnel was rebuilt and two are in progress. Channels were made in the bed of the Cauvery to supply drinking-water to the town, several streets and side channels were repaired, 640 yards of road gravelled, and 32 masonry dust-bins constructed.

General health.

393. Fair. Cholera prevailed somewhat and caused 53 deaths; small-pox carried off 24 persons, fevers 36, and bowel-complaints 57. The diseases treated in the hospital were mostly those caused by insufficient and unwholesome food, such as bowel-complaints, general dropsies, ulcers, &c. The total deaths registered were 421 and births 388, against 366 deaths and 380 births in 1877. 476 vaccine operations were performed, being 75 in excess of the preceding year.

Digitized by Google

Negapatam.

Population, 48,525.

394. From the river; brought into the town during the freshes through aqueducts and stored in tanks. Some wells also in the town yield good drinking-water.

Water-supply.

395. None. Numerous cess-pits exist in the town, into which the house drains empty themselves. The sewage sinks into the soil.

Drainage.

396. The sanitary state of Negapatam is very defective. Cess-pits and tanks with seething filth abound in the town, giving out most offensive smells. Twenty-five carts are employed to keep the town clean and remove the contents from latrines. There are twenty public latrines. All rubbish, &c., are accumulated in two depôts and sold as manure. The backyards of private houses and domestic privies are generally filthy.

Conservancy and sanitary condition.

397. A new well was sunk, two tanks were cleaned, the water conduit was repaired, and the tanks in the town were filled with fresh water; all at a cost of Rupees 1,596.

Sanitary works.

398. Indifferent. Cholera (with 174 deaths), small-pox (66), fevers (318), and bowel-complaints (272) prevailed largely. The total registered deaths numbered 1,477 and births 1,002. The number vaccinated was 1,446. In 1877 there were—deaths 2,057, births 1,014, and 906 persons underwent vaccination.

General health.

Nellore.

Population, 29,922.

399. Abundant in quantity; that obtained from wells in certain parts of the town is good in quality. The river water, which is used by some living near by, is impure. When the river is dry dead bodies are burned and buried in the bed, and when full these operations are performed closed to the edge of the river above the anicut.

Water-supply.

400. Natural drainage good. Pucka masonry drains have been built in some parts of the town, but they have been badly laid and the levels faulty. Water stagnates in them and forms into cess-pools into which the drainage from private houses gathers. In some parts the drains are mere ditches and the house sewage sinks into the soil. The drains lead to the irrigation channels. The old fort still exists, into which some of the drainage falls, and, mingling with the stagnant water, becomes a nuisance in the hot weather.

Drainage.

401. A conservancy establishment is maintained, at a cost of Rupees 6,220, to keep the town clean. There are fifteen latrines, which are mere walled-in enclosures; they are cleaned daily. The night-soil is removed in covered carts and buried near the river above the anicut. Dust-bins are placed all over the town, and the sweepings and rubbish are removed and sold as manure. The sanitary condition of the town is fair.

Conservancy and sanitary condition.

Sanitary works. 402. None.

403. On the whole good. Fevers prevailed somewhat, principally among destitute persons weakened by previous privation. 1,295 deaths and 480 births were registered, against 2,992 deaths and 477 births in 1877. Fevers caused death in 391 instances and bowel-complaints in 354. There was no cholera, and only four deaths are recorded from small-pox. 810 vaccinations were performed against 3,264 in 1877, when a large number of famine paupers were vaccinated. The vaccination in this town is habitually good; hence the small amount of small-pox.

General health.

Digitized by Google

Ootacamund.

Population, 9,982.

404. Obtained from two large reservoirs, of good quality and abundant in quantity. Some wells and the lake water are also sometimes used.

Water-supply.

405. Of the bazaar indifferent. Some attempts at street drainage have been made from time to time, but much requires to be done. There is no system of house drainage. The houses in the lower street next the lake are too low for proper drainage.

Drainage.

406. No improvement was made during the year as regards sanitation for want of funds. None of the recommendations of the Sanitary Commission made in 1877 have been carried out. The "wattle" on the western slope of the jail noted in last year's report has again grown up and is a nuisance. An establishment is maintained to look after the conservancy of the town. All inoffensive rubbish is made use of to reclaim the swamp. Night-soil and other offensive matters are removed to a distance from the town and buried. There are thirty-four public latrines.

Conservancy and sanitary condition.

407. A main drain was repaired, a water-channel and cistern were repaired, the market and bandy-stand were enclosed, the flow of water from low lands was regulated, a large portion of low ground was raised, the reclamation of the lake was carried out, three new latrines were constructed, and several other minor works and repairs effected, all of which cost the Municipality Rupees 6,910.

Sanitary works.

408. On the whole good. A few cases of cholera and small-pox occurred and caused seven and twelve deaths among the native population respectively. So far as can be ascertained, the cholera was imported from Gudalur in the Wynad. Some fever also prevailed; 122 deaths are recorded from this cause. Four cases of typhoid fever and one of diphtheria came under treatment; the latter proved fatal. From bowel-complaints there were 59 deaths. The total deaths registered were 453 and births 355. The number of persons vaccinated amounted to 865. In 1877 the recorded deaths were 747 and births 367, while 1,286 persons were vaccinated. In 1878 to a less extent than in 1877 the mortality was augmented by famine coolies from Mysore and the plains coming up to die.

General health.

Ongole.

Population, 7,392.

409. From tanks, and it is of good quality and abundant.

Water-supply.

410. No regular system of drainage. Covered drains run along either side of the trunk road which are never flushed, and open drains exist in the bazaar streets which are never cleaned. The drainage runs to the fields.

Drainage.

411. Rupees 1,952 were spent on the conservancy establishment employed to keep the town clean. The sweepings and rubbish are carted outside the town and sold by auction as manure. There are seven latrines, five of which are simple mud-wall enclosures, and two are pucka built. The latrines are little used, being far away from the town. The fields adjoining and pieces of waste ground in the town are largely used for purposes of nature.

Conservancy and sanitary condition.

412. None.

Sanitary works.

413. Was fairly good. No epidemics prevailed. 421 deaths occurred during the year, of which fevers caused 197. The births registered numbered 178, and 164 persons were vaccinated.

General health.

Digitized by Google

Palghat.

Population, 30,752.

Water-supply. 414. Plentiful and good; obtained from two wells and numerous tanks and wells.

Drainage. 415. Side drains exist in the streets. No provision is made for the drainage of private houses. These are built on small hills, and the natural drainage is good.

Conservancy and sanitary condition. 416. The sanitary condition of the town is satisfactory. A conservancy establishment is maintained to keep the town clean, and the sweepings and refuse are stored in suitable places and sold as manure. There are no public latrines; the situation of the houses and the habits of the people are such as to make them unnecessary.

Sanitary works. 417. Excepting the sinking of two new wells and cleansing the tanks and wells, nothing of importance was done.

General health. 418. Generally good. Small-pox, fevers, and bowel-complaints prevailed somewhat, causing 294, 341 and 114 deaths respectively; 14 deaths occurred from cholera. The total deaths recorded were 1,303 and births 1,047, against 1,378 deaths and 1,220 births in 1877. 1,016 vaccinations took place, against 699 in 1877.

Palamcottah.

Population, 17,945.

Water-supply. 419. Most of the wells are brackish; some wells, however, contain water of a fair quality which is used for drinking. Water is also obtained from a river channel and from tanks and reservoirs.

Drainage. 420. Drains exist to carry off storm-waters only. There are no sewers.

Conservancy and sanitary condition. 421. The conservancy establishment consists of 2 inspectors, 2 peons, 14 toties, and 8 carts. The sweepings and refuse of the town are burnt in cinerators and mixed with the contents of private and public latrines and buried in trenches. There are four public latrines, three of which are mere open mud-wall enclosures. The dry-earth system is adopted in them. Sanitary condition on the whole fair.

Sanitary works. 422. A new well was sunk, a cinerator constructed, and a cholera and a small-pox shed were constructed. Besides these, repairs were effected to latrines and other buildings, and the drains were cleaned out.

General health. 423. Good. Excepting a few deaths (12) from sporadic cholera and small-pox (24), no diseases prevailed in an epidemic form. 596 deaths and 555 births were registered. Fevers were the cause of death in 35 instances and bowel-complaints in 149. 403 persons were vaccinated. In 1877 there were 744 deaths and 665 births, and 450 vaccine operations were performed.

Rajahmundry.

Population, 19,738.

Water-supply. 424. Obtained from the Godavari river for drinking purposes; of good quality. The water of the wells in the town is brackish.

Drainage. 425. The older part of the town is on a slope on high ground and the natural drainage is good, while the modern suburb of Innespettah being below the Godavari when in flood, becomes a swamp

in the rainy season, and there is no drainage here. Private houses have cess-pools, which are cleaned by municipal servants.

Conservancy and sanitary condition.

426. An establishment costing Rupees 6,625 is maintained to keep the town and latrines clean. There are 200 dust-bins placed in different parts of the town. The sweepings and refuse are collected and carried outside municipal limits and sold as manure. There are only six public latrines for the whole town, two of which are thatched. The cess-pools in private houses (50 in number) and upwards of 1,000 private privies are cleaned under municipal direction. Three carts are employed for the cess-pools. The contents of public and private privies are carried in baskets out of the town and buried. Sanitary condition of the town satisfactory, but the backyards of private houses are very dirty and filled with cattle.

Sanitary works.

427. None, except a drain was repaired at a cost of Rupees 10 and some pits filled.

General health.

428. Unsatisfactory. Owing to large exportations of articles of consumption to the famine districts prices were high, which was much felt by the poorer classes, and as a result the public health suffered. 1,042 deaths and 500 births were registered against 1,043 deaths and 605 births in 1877. Cholera (88), small-pox (188), fevers (90), and bowel-complaints (86) were the prevailing diseases. 845 vaccinations were performed, against 768 in 1877.

Salem.

Population, 50,012.

Water-supply.

429. For drinking purposes from wells and reservoirs; of good quality. For bathing and domestic use from the river.

Drainage.

430. The streets have masonry side drains into which the sewage from some of the houses flows. In other houses the sewage is either left to dry or sinks into the soil. The drains in a small section of the town empty themselves into cisterns, the contents being carried away by drain cleaners beyond municipal limits or into gardens within the town.

Conservancy and sanitary condition.

431. The town is kept clean by a conservancy establishment. Street sweepings and rubbish are stored in depôts and sold to cultivators. Night-soil from latrines is buried in pits and sold when fit for use as manure. There are forty-two public latrines, some of which are mud or stone wall enclosures. Private privies also are looked after by municipal servants.

Sanitary works.

432. A few culverts and a cistern were built, a reservoir and several latrines were repaired, and a new bandy-stand was opened out. Sanitary condition of the town fair.

General health.

433. On the whole satisfactory. During the early part of the year cholera prevailed and caused 96 deaths. Fevers and bowel-complaints also were somewhat prevalent, numbering 327 and 290 persons as their victims respectively. The total deaths registered were 1,321 and births 811, against 2,326 deaths and 1,182 births in 1877. The vaccinations numbered 1,036, against 1,997 in 1877.

Digitized by Google

Srirangam.

Population, 18,655.

Water-supply.

434. From the rivers Cauvery and Coleroon for drinking purposes. For domestic use from private wells.

Drainage.

435. No regular system of drainage. A few slab drains exist to carry off storm-water. Every house has its cess-pit in the backyard, and often one in the street in front of the house which receives the refuse water. These cess-pits are said to be cleaned under municipal direction, but it is doubtful if the pits are ever emptied.

Conservancy and sanitary condition.

436. A staff of conservancy servants is employed, and the town swept and kept fairly clean; no arrangement exists for the cleaning of the backyards of private houses. The sweepings and rubbish are removed into fields, and the night-soil is buried in pits outside the town. There appears to be no demand for this manure by Native cultivators. There are seven latrines in the town, on the trench system, in which dry earth is used. Sanitary condition of private houses unsatisfactory owing to the difficulty of access into them by municipal servants.

Sanitary works.

437. Beyond attending to the conservancy of the town and completing a latrine in the dispensary, nothing was done.

General health.

438. On the whole satisfactory. A few cases of cholera and small-pox occurred. The deaths registered numbered 535 and births 252, against 1,057 deaths and 280 births in 1877. 394 persons underwent vaccination, against 518 in the year preceding.

Tanjore.

Population, 52,175.

Water-supply.

439. From the Shivaganga tank principally. Water from other tanks, wells, and channels is also used. The water-supply is somewhat defective, but a project is in contemplation which will supply the town with abundance of water. Plans and estimates have been prepared, and application has been made to Government for a loan to commence the work.

Drainage.

440. Generally in good condition. Three channels are constructed to divert the sewage, which was formerly discharged into the fort ditch, to the fields. The ditch will be converted into a water-supply reservoir by the new project. The streets and lanes are provided with well constructed side drains to carry off the sewage from private houses and rain-water into the main drains.

Conservancy and sanitary condition.

441. A conservancy establishment is maintained at a cost of Rupees 12,090 to keep the town clean. Fifty carts are employed for the removal of the sweepings, &c., from the streets and the night-soil from the latrines. The manure thus collected is by agreement taken by the contractor who supplies the carts. There are 44 public latrines of different kinds and sizes. The town is kept clean and the sanitary condition is fair.

Sanitary works.

442. Three drainage channels, at a cost of Rupees 1,500 and a small drain at Rupees 42, were constructed and a drain was repaired. The Haripandithur tank was improved, and Rupees 12,044 were spent for taking levels and preparing plans in connection with the contemplated water project. Croton and prickly-pear plants were removed, a few temporary latrines were put up, cinerators were repaired, and other minor works executed during the year. The whole sum spent on sanitary works amounted to Rupees 15,576 including the sum spent for the water-supply project and excluding the cost of the conservancy establishment.

Digitized by Google

443. Favorable. Small-pox, fevers, and bowel-complaints were the prevailing diseases; a few cases of cholera also occurred. The total deaths registered were 1,268 and births 1,386, against 2,337 deaths and 1,453 births in 1877. Of the deaths bowel-complaints were the cause of death in 389 instances, fevers in 220, small-pox in 54, and cholera in 11. 1,056 vaccine operations were performed, against 1,151 in 1877.

General health.

Tellicherry.

Population, 20,504.

Water-supply.

444. Obtained from private and public wells and tanks; of good quality and plentiful.

Drainage.

445. Is good and runs into the sea. Private houses have cess-pits.

Conservancy and sanitary condition.

446. The town is kept fairly clean by an establishment costing Rupees 2,950. The sweepings and rubbish are stored on the beach far from dwelling houses, to be sold as manure, but there is no great demand for it. There are only three latrines in which the dry-earth system of conservancy is adopted, and the contents buried on the beach. Sanitary condition of the town is satisfactory, but the existence of cess-pits in private houses and often near wells is a nuisance.

Sanitary works.

447. None.

General health.

448. On the whole satisfactory. There were, however, occasional outbreaks of cholera causing 124 deaths. The total number of deaths registered was 529 and of births 417. Fevers caused 97 deaths and bowel-complaints 6. 995 persons were vaccinated. In 1877 the recorded figures were deaths 622, births 441, and the number vaccinated 649.

Tinnevelly.

Population, 21,044.

Water-supply.

449. For eight or nine months in the year from the irrigation channels leading from Tamrapurni river, and tanks. When the channels and tanks run dry water is brought from the river and wells are resorted to. The arrangements in regard to the purity of the water-supply are not satisfactory.

Drainage.

450. Irrigation channels run in different parts of the town, which serve for the drainage of surface waters as well as for water-supply. Masonry drains exist in the main streets, which are washed by the water from the channels when full. Sewage from the backyards of private houses is washed into the channels.

Conservancy and sanitary condition.

451. The town is kept clean by a conservancy establishment maintained for the purpose at a cost of Rupees 4,074. The streets and lanes are swept and cleaned twice a day, and the sweepings and rubbish are burnt in a cinerator. The ashes are mixed with the night-soil and buried in pits outside the town, and sold by public auction as manure to the people who know the value of the compost. At a sale at which the Sanitary Commissioner was present during his tour of inspection, a pit containing 150 bandy-loads of six months' manure was sold for Rupees 180. There are only nine open public latrines for the whole town, four of which have masonry and five mud walls on the trench system. Dry earth is used in them. The sanitary condition of the town was fair.

Digitized by Google

452. Two cross tunnels were constructed, and two others repaired; the dust-bins and latrines were put in thorough repair, a parapet wall was raised around a public well and another was cleaned and repaired, and the water channels intersecting the town were cleaned during the dry season.

Sanitary works.

453. Satisfactory. No epidemic diseases prevailed. A few cases of sporadic cholera and small-pox occurred. The total deaths registered numbered 918 and births 544, against 1,002 deaths and 679 births in 1877. Of the deaths, cholera was the cause in 14 instances, small-pox 22, fevers 95, and bowel-complaints 180. 152 vaccinations were performed, against 585 in 1877. The small number of vaccine operations was owing to the loss of the Vaccinator for eight months of the year, and inability to find a suitable successor.

General health.

Trichinopoly.

Population, 76,530.

454. Obtained from the Cauvery river by the Wycondah channel which passes through the town irrigating the surrounding country. A net-work of masonry tanks are filled with this water, which the people use for drinking, bathing, and washing clothes and animals. The channel water as it issues from the Cauvery is generally pure; but as it receives the drainage of cultivated lands, and is fouled in many other ways, it cannot be said that the water-supply of the town is satisfactory. Some of the people in the fort get their water from the Cauvery direct.

Water-supply.

455. There is no regular system of drainage. Surface drainage of the fort is led to irrigated lands. In the cantonment street-drains and water-courses exist. Cess-pits abound in private houses.

Drainage.

456. Conservancy is well attended to by an adequate establishment and the town kept fairly clean. Forty-five rubbish carts and 20 for night-soil are employed. The sweepings and rubbish are burnt in cinerators, and the ashes are mixed with the night-soil from the latrines, and the compost is stored in depôts and sold as manure. There are 54 public latrines of different kinds. On the whole the town is clean and the sanitary condition fair, which may be attributed to the large number of public latrines in existence.

Conservancy and sanitary condition.

457. Side drains were cleaned, the construction of Beemanaikpolliem tank was completed, a rubbish depôt was constructed, night-soil sheds and latrines were repaired; two temporary privies and cholera sheds were constructed, and improvements made to the hospital.

Sanitary works.

458. Fair. Cholera prevailed to some extent in the beginning of the year, carrying off 134 persons in two months. Cases of small-pox occurred throughout the year and caused 55 deaths; of the other deaths fevers numbered 273 and bowel-complaints 601. The total deaths registered was 1,799 and births 1,501, and the number vaccinated was 1,972. In 1877 there were 2,961 deaths recorded and 1,559 births, and the vaccine operations numbered 2,416.

General health.

Tuticorin.

Population, 10,565.

459. The water-supply comes from the Tamrapurni river. It is brought from a reservoir four miles distant in open channels and masonry conduits and stored in dipping wells and tanks. The water is pure at the source, but is liable to risks of contamination in its transit and in the dipping wells.

Water-supply.

Digitized by Google

Drainage. 460. There is an absence of all drainage arrangements both of streets and houses.

Conservancy and sanitary condition. 461. The sweepings and rubbish are burnt and the night-soil buried. There are six public latrines with simple leaf enclosures on dry sand. The town is kept clean of accumulations and the scavenging efficient.

Sanitary works. 462. Two drains were constructed and the water conduit extended 300 yards to supply another portion of the town with water.

General health. 463. Satisfactory. No epidemic diseases prevailed. 423 deaths were registered from all causes: cholera (1), small-pox (14), fevers (82), and bowel-complaints (201). The births were 401 and number vaccinated 1,055. In 1877 there were 1,392 deaths, 392 births, and 908 persons underwent vaccination.

Vizagapatam.

Population, 32,191.

Water-supply. 464. Obtained from wells; said to be good and sufficient in quantity.

Drainage. 465. Side drains exist in the streets, into which the sewage and refuse waters from private houses are received; these empty themselves into a main drain on the swamp which runs into a tank. The drains are out of repair and water stagnates in them.

Conservancy and sanitary condition. 466. The town is divided into six divisions with a staff of conservancy servants for each to keep them clean. The sweepings, &c., are buried outside the town. There are thirty-six public latrines; no carts are used to carry the night-soil or rubbish; sweepers do this work. In some parts of the town the sanitary condition is fair, while in others it is bad. The privies of private houses are not well looked after. The houses are scattered and separated by lanes in which sewage forms pools of decomposing filth.

Sanitary works. 467. A surface drain is under construction; some of the existing drains were repaired, several wells were cleaned out and deepened, and other works of minor importance were attended to.

General health. 468. Unfavorable. Owing to scarcity and high prices of food the poorer classes suffered a great deal. Large numbers of poor people flocked in to obtain relief and thus making the town unhealthy. Cholera with 107 deaths, small-pox with 41, fevers with 181, and bowel-complaints with 273 were the chief prevailing diseases. The total deaths registered were 1,429 and births 851 against 1,438 and 936 births in 1877. The vaccinations performed were 950 in number against 202 in 1877.

Vizianagram.

Population, 20,169.

Water-supply. 469. Obtained from tanks and wells; of good quality.

Drainage. 470. The streets are wide and have side drains. The drainage is fair, but many of the drains require repairing.

Conservancy and sanitary condition. 471. The town is cleaned and swept once a day; the sweepings, &c., are taken away and disposed of by contractors who assist in the conservancy work for this consideration. There are twenty public latrines, a few of which are under repair.

Digitized by Google

472. Four thousand two hundred and sixty-two yards of drains, some tunnels, and latrines were repaired; fifty dust-bins were put up, and sundry pits, where water used to stagnate, were filled up.

Sanitary works.

473. Unsatisfactory. The poorer classes suffered much from want of food and many died, cholera causing 108 deaths, small-pox 10, and bowel-complaints 200. The total deaths registered were 944 and births 675 against 829 deaths and 591 births in 1877. 738 persons were vaccinated, while 633 operations were performed in 1877.

General health.

Wallajapet.

Population, 12,103.

Water-supply.

474. Obtained from five tanks in the town and reported to be of good quality. The tanks are fed by springs and flood-waters.

Drainage.

475. Side drains exist in the streets, and the drainage of private houses is fair.

476. The town was kept clean by a staff of conservancy servants at a cost of Rupees 2,260. The sweepings and night-soil are deposited outside the town and the accumulation sold by public auction as manure. There are seven latrines in the town.

Conservancy and sanitary condition.

477. The construction of two drains was completed, all the tanks were cleaned, three were repaired completely, and another of good water was protected from pollution with a wooden shutter. The backyards of private houses were cleared of rank vegetation, 237 avenue trees were planted, and other minor works were attended to.

Sanitary works.

478. Satisfactory. No epidemics prevailed. 318 deaths and 243 births were registered during the year. Fevers (48) and bowel-complaints (43) were the chief causes of death. 468 persons were vaccinated. In 1877 there were 980 deaths and 353 births, and number vaccinated 472.

General health.

Digitized by Google

Statement showing the Estimated Income and Expenditure for Sanitary purposes, Birth and Death-rates, and Numbers Vaccinated in each Municipality during the Year 1878.

Districts.	Municipal Towns.	Population.	Birth-rate per 1,000 of Population.	Death-rate per 1,000 of Population.	Cholera per 1,000 of Population.	Fevers per 1,000 of Population.	Small-pox per 1,000 of Population.	Bowel complaints per 1,000 of Population.	Available Income.	Sanitary Expenditure.	Rate per cent. of Sanitary Expenditure to Available Income.	Amount allotted for Vaccination.	Total Number Vaccinated.	Total Births.
									RS.	RS.		RS.		
Bellary ...	Bellary	51,766	10·3	49·5	5·5	9·8	0·4	11·4	68,618	31,906	46·5	678	1,359	534
	Adoni	22,723	15·8	57·1	4·3	24·2	0·6	19·2	28,681	5,970	20·8	230	586	359
	Gooty	6,730	8·0	58·9	5·0	3·7	...	7·7	3,247	1,906	58·7	...	...	54
	Anantapur	4,918	7·7	116·7	23·9	25·6	...	32·7	5,230	2,126	40·6	...	31	38
Chingleput ...	Conjeveram	37,327	19·4	28·4	0·02	6·0	1·5	14·2	17,850	5,390	30·1	210	1,190	726
Coimbatore	Coimbatore	35,310	20·7	15·2	0·1	4·8	0·7	2·9	28,000	7,737	27·6	197	1,177	783
	Erode	10,201	14·1	16·2	0·5	4·6	0·3	4·2	8,196	2,670	32·5	99	299	144
	Karur	9,378	15·9	22·7	0·6	14·6	0·5	0·7	7,400	3,322	44·8	96	272	150
Cuddapah	Cuddapah	16,275	23·7	97·4	6·2	42·4	0·06	10·0	32,104	6,920	21·5	197	231	236
Ganjam ...	Chicacole	15,587	17·3	37·5	2·6	6·7	0·3	9·3	9,642	2,960	30·6	150	313	271
	Berhampore	21,670	19·6	45·6	19·0	5·5	1·2	0·3	17,853	5,122	28·6	150	404	425
Godavari ...	Cocanada	17,839	27·5	55·9	10·1	3·8	14·1	4·2	26,000	5,810	22·3	190	2,082	491
	Rajahmundry	19,738	25·2	52·8	4·4	4·5	9·5	4·3	16,189	8,125	50·1	154	845	500
	Ellore	25,487	27·9	42·1	6·7	2·7	5·1	4·4	14,970	4,640	30·9	240	867	712
Kistna ...	Masulipatam	36,188	23·3	26·7	6·9	3·5	2·3	1·3	30,000	11,579	38·5	300	1,531	844
	Guntoor	18,033	22·6	29·0	...	3·6	2·1	5·0	25,972	7,632	29·3	286	648	410
Kurnool	Kurnool	25,579	7·8	90·3	13·7	36·5	0·1	25·6	16,300	10,340	63·4	190	322	200
Madras	Madras	397,552	37·9	47·5	0·2	13·5	1·1	11·4	561,882	307,992	54·8	4,252½	39,376	15,078
Madura ...	Madura	51,987	31·5	48·8	1·2	5·4	0·7	14·1	94,157	25,338	26·9	480	2,570	1,642
	Dindigul	12,865	24·6	18·5	0·07	6·1	0·6	2·4	7,548	2,960	39·2	185	1,418	317
Malabar ...	Tellicherry	20,504	20·3	25·7	6·0	4·7	0·04	0·2	20,894	5,250	25·1	240	995	417
	Calicut	47,962	14·5	26·1	1·1	1·9	6·6	0·6	35,951	7,239	20·1	264	1,553	697
	Palghat	30,752	34·0	42·3	0·4	11·0	0·5	3·6	21,921	2,768	12·6	125	1,016	1,047
	Cochin	13,840	25·5	47·5	9·0	2·8	11·9	3·3	13,100	2,650	20·2	180	1,559	353
	Cannanore	31,358	14·7	12·6	0·3	3·4	0·08	0·7	19,160	7,778	40·5	245	1,270	462

Digitized by Google

Statement showing the Estimated Income and Expenditure for Sanitary purposes, Birth and Death-rates and Numbers vaccinated in each Municipality during the Year 1876—(Continued).

Districts.	Municipal Towns.	Population.	Birth-rate per 1,000 of Population.	Death-rate per 1,000 of Population.	Cholera per 1,000 of Population.	Fevers per 1,000 of Population.	Small-pox per 1,000 of Population.	Bowel complaints per 1,000 of Population.	Available Income.	Sanitary Expenditure.	Rate per cent. of Sanitary Expenditure to available Income.	Amounted allotted for Vaccination.	Total Number vaccinated.	Total Births.
									RS.	RS.		RS.		
Nellore	Nellore	29,922	15·5	43·2	0·03	18·0	0·1	11·8	29,004	7,160	24·6	164	810	480
	Ongole	7,392	24·0	56·9	...	26·6	0·5	0·1	9,390	1,952	20·7	120	164	178
North Arcot ...	Vellore	38,022	17·1	24·6	...	6·7	0·5	4·9	35,140	11,032	31·3	420	3,599	651
	Wallajapetta	12,103	20·0	26·2	0·2	3·9	0·9	3·5	10,873	4,350	40·0	210	468	248
Nilgiris ...	Ootacamund	9,982	35·5	45·3	0·7	12·2	1·2	5·9	39,500	22,496	56·9	500	865	355
	Coonoor	3,058	27·4	68·6	2·6	15·0	0·3	32·3	11,960	4,314	36·0	216	647	84
Salem	Salem	50,012	26·4	16·2	1·8	6·5	1·2	5·7	40,960	15,010	36·6	490	1,036	811
South Arcot ...	Cuddalore	40,290	20·6	24·1	1·1	6·3	3·5	4·0	26,330	7,790	29·5	220	1,242	830
	Chilambaram	15,519	11·4	21·8	2·0	9·0	4·1	1·7	23,348	10,112	43·3	150	500	178
South Canara ...	Mangalore	29,712	20·8	22·1	...	7·0	...	2·8	26,060	5,100	19·6	190	1,146	619
Tanjore ...	Tanjore	52,175	26·5	24·3	0·2	4·2	1·0	7·4	60,800	35,690	58·7	370	1,056	1,386
	Combaconum	44,444	29·9	40·9	3·1	7·2	1·7	8·7	45,340	15,709	34·6	315	895	1,330
	Mayavaram	21,165	18·3	19·8	2·5	1·7	1·1	2·6	19,000	4,488	23·6	220	476	388
	Negapatam	48,525	20·6	30·4	3·5	6·5	1·3	5·6	49,450	16,317	32·9	400	1,446	1,002
	Mannargudi	17,703	26·4	26·0	2·3	4·4	1·7	4·8	14,500	3,825	26·3	195	744	479
Tinnevelly ...	Tinnevelly	21,044	25·8	43·6	0·6	4·5	1·0	8·5	17,260	4,378	25·3	190	152	544
	Palamcottah	17,945	30·9	33·2	1·1	1·9	1·3	8·3	16,900	2,770	16·4	130	408	555
	Tuticorin	10,565	37·8	40·0	0·09	7·7	1·3	19·0	17,690	7,620	43·0	220	1,055	401
Trichinopoly ...	Trichinopoly	76,530	19·6	23·5	1·7	3·5	0·7	7·8	63,940	19,186	30·0	1,200	1,972	1,501
	Srirangam	18,655	13·5	28·6	1·4	3·2	0·8	8·3	14,781	3,864	26·1	240	394	252
Vizagapatam ...	Vizagapatam	32,191	26·4	43·5	3·3	5·4	1·2	8·3	21,723	7,633	34·6	230	950	351
	Bimlipatam	8,744	14·5	31·2	4·5	4·3	0·1	6·1	9,711	2,037	20·9	160	442	127
	Vizianagram	20,169	33·4	46·8	5·3	20·1	0·4	9·9	12,162	5,298	43·5	200	738	675
	Anakapalle	13,044	17·1	30·3	6·9	15·5	1·3	0·8	8,686	1,044	12·0	200	132	223
	Total ...	1,620,480	25·3	33·5	2·3	8·9	1·7	8·1	17,55,368	7,05,352	40·1	16,277	33,106	41,133

LOCAL FUND CIRCLES.

479. During the year the Sanitary Commissioner recommended for adoption and submission to him by Local Fund Boards of a form of annual sanitary report containing information, under certain specific heads, in regard to (1) estimated income; (2) estimated amount of land-cess, (3) sanitary expenditure; (4) expenditure for vaccination, (5) brief report of sanitary progress as regards drainage, water-supply, improvement of village-sites, conservancy, and other sanitary improvements. The Board of Revenue and Government approved of the same, but the order sanctioning the adoption of the report was issued after the year had expired. Hence the reports received from such of the Local Fund Boards, who have complied with the order for 1878, are not so full and complete as might be desired. However, now that a beginning has been made, it is to be hoped that future reports will contain more definite information under the different specified heads and enable the Sanitary Commissioner to note precisely the progress made in rural sanitation year by year.

480. The information in regard to the estimated available income and the sanctioned amount for sanitation and vaccination is shown in a tabular form and appended to this section. The figures in these respects have been taken from the budget estimate of the several Local Fund Circles sanctioned by the Board of Revenue.

481. From this table it will be seen that, taking one-third of the land-cess as the available income for purposes other than roads, the aggregate available income during 1878-79 amounted to Rupees 13,11,486; of this sum Rupees 3,05,067 have been set apart for sanitary purposes excluding vaccination. This gives a percentage of 23·2 on the available income which may be considered as a fair allotment for sanitary expenditure on the whole; but when we come to look at the provision for each Circle we find the rates varying from 1·8 in the Tellicherry Circle to 98·2 in the Negapatam Circle. From 15 to 20 per cent. of the available income is what I consider as the minimum allotment that should be made for sanitary purposes. More may be set apart and useful works carried out. In a few Circles where, from the habits of the people or the nature of the country, little or no conservancy establishment may be required, a lower minimum may perhaps be fixed; but as a rule anything below 15 to 20 per cent. would, I think, scarcely meet the real and genuine sanitary wants of a Circle; and this inadequacy we find during 1878-79 in Tellicherry (1·8 per cent.), in Calicut (4·2), in Dindigul (5·4), in Canara (7·4), in Bellary (7·7), in Shermadevi (10·5), in Chittur (12·1), in Cuddalore (12·9), in Vellore (13·1), Salem (13·9), in Chingleput, (15·0), and in Vizagapatam (15·0).

482. Extracts from the budget estimates, Grant III, relating to sanitation and vaccination are, under Rule XX of the Local Funds Act of 1871, forwarded to me for remarks as regards the adequacy or otherwise of the provision made for the sanitary needs of the Circle. In all instances, except in cases when a reasonable cause is shown, where the allotment made for sanitation falls below what I consider to be the minimum, *i.e.*, 15 to 20 per cent. of available income, I pronounce the grant to be inadequate; but the recommendations for an increased allotment are but seldom adopted from want of funds, and in only two instances for the year 1878-79 has the sanitary grant been, according to my recommendation, increased, viz., in Canara Circle from Rupees 1,170 to 2,170 and in Gooty Circle from Rupees 2,400 to 5,820.

483. Only twenty-six of the thirty-four Local Fund Boards in the Presidency have sent in a sanitary report in compliance with the orders of the Board of Revenue and Government. The following is a brief abstract of the reports thus received for the first time.

Nellore.	Trichinopoly.
Penukonda.	Dindigul.
Cuddapah.	Calicut.
Madhanapalle.	Negapatam.

484. The Local Fund Boards which have not sent in any report are given in the margin.

Digitized by Google

Chetterpore Circle.

484. This Circle, in the Ganjam District, comprises eight taluks.

485. Cut stone drains were constructed at Itchapore; three tanks were repaired and village and town roads were constructed at Purshettapore and Itchapore. The conservancy of thirteen towns in the Circle was attended to by an establishment costing Rupees 2,938, and some jungle vegetation was cleared in Chetterpore.

Sanitary works.

486. Cholera and small-pox prevailed throughout the year, causing 2,238 and 371 deaths respectively in the district.

Epidemics.

487. Unsatisfactory. Prices of food were high and the quality of the drinking-water for the first half of the year was bad, but an improvement in every respect took place after the rain in July. Sanitary condition of villages bad.

General health.

Bellary Circle.

488. Six taluks out of the eleven in the district are comprised in this Circle.

489. None carried out owing to want of funds. The conservancy of only seven large villages, including five Cusbah stations, were attended to by an establishment of sweepers from two to six in number at a cost of Rupees 1,330. Two festivals took place during the year—the Humpi and Mylar feasts—in April and February. The conservancy of the camping-grounds was attended to and other sanitary arrangements were made on the occasion.

Sanitary works.

490. Cholera prevailed in the Circle from 20th April to 20th November, and caused 2,115 deaths. The Hospet Taluk suffered most with 916 deaths. The largest number of deaths occurred in May, when 570 deaths were recorded in the Hospet Taluk alone. The usual precautions were adopted: cholera pills were freely circulated, disinfectants used, and cleanliness enforced in the affected localities. The disease is supposed to have been brought by pilgrims from the Humpi festival, which took place about the time of the outbreak. (For further particulars see section on "History of Chief Diseases—Cholera.")

Epidemics.

491. Unsatisfactory. In addition to cholera, fevers and guinea-worm were prevalent. The great prevalence of fevers is attributed to the excessive rainfall of 1878 which moistened to a greater extent than usual the heaps of filth which lie about in all the villages.

General health.

Gooty Circle.

492. This Circle contains five taluks of the Bellary District.

493. None. The conservancy of six large villages only were attended to in this Circle and thirty-two sweepers were employed for the purpose.

Sanitary works.

494. Cholera prevailed largely from 21st of April till the 9th September, and caused 1,724 deaths.

Epidemics.

495. Unsatisfactory owing to the enfeebled condition of the people through insufficient and indifferent food. Fevers prevailed extensively, which is attributed to the excessive rainfall during the year. The sanitary condition of the Circle is indifferent.

General health.

Digitized by Google

Canara Circle.

496. The whole district is comprised in this Circle.

Sanitary works.

497. None. Drainage is natural and requires no special arrangements. Water-supply is abundant and of good quality requiring no improvement. No special arrangements are made for conservancy; the heavy rains cleanse the villages in the district. Sanitary arrangements were made and successfully carried out during the six festivals that took place during the year.

Epidemics. 498. None.

General health. 499. Favorable.

Saidapet Circle.

500. Three taluks are comprised in this Circle.

Sanitary works.

501. Nothing, except the repairing of certain streets in Saidapet Town at a cost of Rupees 127. The conservancy of only two towns in the Circle were attended to, viz., Saidapet and Tiruvalur at a cost of Rupees 2,148. The sanitary condition of the Circle is unsatisfactory. On this subject the Vice-President, Mr. Ruthnavalu Chetty, the Assistant Collector, writes as follows:—

"The sanitary condition of the Circle is decidedly not good. Dirt reigns supreme in the villages. Efforts have been made, and are being extended, to keep the larger towns clean by means of a regular conservancy establishment. The result has been that in some places a good deal of filth which would otherwise have been allowed to fester and breed foul odors and very probably disease has been safely disposed of. Want of funds amounting to actual insolvency has, however, prevented our extension of this good work and of the equally important one of digging draw wells, the water of which cannot be polluted. More might be done if there was any public spirit or appreciation of even the rudiments of sanitation amongst the people themselves, but there is none, and the system which hangs around the neck of Revenue officials, hereditary village headships, involving the appointment and retention of, as what are, *de facto*, Collectors and Magistrates of villages—persons who are as careless as they are frequently incompetent—is a fatal bar to any progress. Written orders are mere waste paper, and the Revenue officers have so much other work to attend to now-a-days that there is no time to go about in the smaller villages prosecuting—with doubtful legality—the owners of offending 'middens.' What is wanted is some kind of minor Municipal Act—shorn of its lighting, Police, toll bars, Commissioners' office, establishments and other like expensive appendages—a law, in fact, which will allow of the raising in any village (say) of 1,500 or 2,000 inhabitants of a tax the proceeds of which can be devoted to keeping the place clean, digging wells for the public use, &c. What now goes to sanitation from Local Funds—I mean by this conservancy establishment and such like—ought, in my opinion, to go to hospitals, dispensaries, &c., which are for the general good, actual cleansing work being made more a matter of localized taxation than it is."

Epidemics.

502. None, with the exception of a slight outbreak of cholera in November in the Saidapet Taluk, which caused ten deaths.

General health.

503. On the whole fair. Fevers, however, prevailed very much, and boils and ulcers were frequently seen in the early part of the year attributed to the enfeebled condition of the people from the effects of the late famine and excessive rainfall.

Chingleput Circle.

504. The three other taluks of the Chingleput District are comprised in this Circle.

Sanitary works.

505. None. Want of funds is a great drawback to sanitary progress in this as well as in the other (Saidapet) Circle of the district. Rupees 3,005 were spent for conservancy purposes during the year, and only ten towns and villages in the whole Circle were attended to in this respect. The largest sum, Rupees 1,014, was expended in Chingleput Town.

Epidemics.

506. Small-pox prevailed throughout the year and a slight outbreak of cholera occurred on the 17th of November and ceased on the 11th December, during which time fifty-eight deaths were recorded. During the prevalence of small-pox three extra vaccinators were employed to combat with the disease.

Digitized by Google

507. As in Saidapet Circle fevers prevailed extensively and boils and ulcers were frequently seen. The remarks on the Saidapet Circle apply also to this Circle.

General health.

Coimbatore Circle.

508. This Circle comprises the whole of the taluks in the district and is divided into two sections, Northern and Southern, each containing five taluks.

509. The repairs of six wells are in progress for which Rupees 285 have been sanctioned. One new well was sunk at a cost of Rupees 200 and another is in progress; the conservancy of large and important villages was attended to at a monthly cost of Rupees 700. Ten trench latrines were constructed at Mettapolliem, and the repair of the old ones are in progress. Nothing appears to have been done as regards drainage and improvement of village sites.

Sanitary works.

Epidemics.

510. None except cholera, which prevailed in a sporadic form between August and October.

General health.

511. On the whole good.

Ellore Circle.

512. There are five taluks in this Circle.

513. Parapet wells were erected to the slope at the landing place at Narsapur; several tanks and wells were repaired; streets in Narsapur town were repaired and improved, and a rest-house was constructed. The construction of steps to a tank, another rest-house, and the repair of the travellers' bungalow and a pathway are in progress. Only Rupees 1,030 have been allotted for conservancy purposes. Besides some scavengers employed to keep the grounds clean at the villages where fairs are held, twelve scavengers are permanently entertained for five towns. No report is made of what the arrangements are for the conservancy and cleansing of the other villages in the Circle.

Sanitary works.

514. Cholera and small-pox prevailed very extensively during the year, causing 4,753 and 9,674 deaths respectively. During the prevalence of small-pox five extra vaccinators were entertained.

Epidemics.

General health.

515. On the whole fair. The sanitary condition of the Circle is improving.

Cocanada Circle.

516. The eight other taluks of the Godavari District are comprised in this Circle.

517. Three wells and thirteen tanks were repaired and cleaned and two new wells were constructed. During the hot weather ponds were dug to supply Coringa with fresh water at a cost of Rupees 55. Nothing was done towards the drainage of the Circle and improvement of village sites. The conservancy of the principal towns and villages only are attended to, for which purpose fifteen scavengers are employed. Sanitary arrangements were made at a cost of Rupees 580 on the occasion of two festivals which took place during the year.

Sanitary works.

518. Cholera and small-pox prevailed throughout the year, which were the causes of death in 4,795 and 8,401 instances respectively. Three extra vaccinators were employed owing to the prevalence of small-pox.

Epidemics.

General health.

519. Unsatisfactory.

Digitized by Google

Masulipatam Circle.

520. Seven taluks are contained in this Circle.

Sanitary works.

521. Three new wells were constructed and four tanks and one well were repaired at a cost of Rupees 1,307. Eight other new wells are being sunk and one is being repaired at an estimated cost of Rupees 322. Rupees 375 were spent in improving certain roads by filling up holes, &c., Rupees 329 for removing prickly-pear and Rupees 122 for sanitary arrangements at certain festivals which took place during the year. The conservancy establishments cost Rupees 6,300 and were maintained in only thirteen towns of the Circle.

Epidemics.

522. Cholera and small-pox prevailed throughout the greater portion of the year.

General health.

523. Unfavorable. Fevers prevailed somewhat, being the result of excessive rainfall.

Guntoor Circle.

524. In this Circle six taluks are comprised.

Sanitary works.

525. A flood bank was constructed to secure a village from inundation, and several tanks and wells were repaired and cleaned. A conservancy establishment at a cost of Rupees 6,757 was maintained for the whole Circle; no particulars are given as to how they were employed.

Epidemics.

526. Cholera and small-pox prevailed throughout the greater portion of the year.

General health.

527. Indifferent. Fevers prevailed extensively. The sanitary condition of the villages is bad; prickly-pear abounds throughout which gives shelter for the commission of nuisance.

Kurnool Circle.

528. The whole of the Kurnool District is comprised in this Circle.

Sanitary works.

529. Three wells were repaired; twenty-six towns and villages were cleaned by a small establishment of sweepers, &c., maintained at each of them. The largest establishment maintained was at Cumbum town consisting of one Overseer on Rupees 15, two peons at Rupees 6 each, and twenty-seven sweepers on an average of Rupees 5½ each. The amount sanctioned for scavengering, &c., of towns and villages for the year 1878-79 was Rupees 10,000. Sanitary arrangements were made at eleven festivals which took place at a cost of Rupees 662.

Epidemics.

530. Cholera prevailed in the Circle from May to September and caused 1,896 deaths. There was a slight prevalence of small-pox also throughout the year with eighty-five deaths.

General health.

531. Unsatisfactory. Fevers, bowel-complaints, guinea-worm, and ulcers were the prevailing diseases. The sanitary condition of the Circle is said to be fair.

Digitized by Google

Madura Circle.

532. This Circle contains two Government taluks and the two large Zemindaries in the district, viz., Ramnad and Shivaganga.

Sanitary works.

533. Eleven wells were repaired. A few streets were improved. Watchmen were employed to prevent pollution of drinking-water sources in certain villages, conservancy establishments were employed in some of the larger villages and towns, and sanitary measures were successfully adopted during the festivals that occurred in the year.

Epidemics.

534. None of a serious nature. A few sporadic cases of cholera occurred in the Madura Taluk and along the coast route of pilgrims to Ramasveram. Every precaution was taken to arrest the progress of the disease.

General health.

535. Unsatisfactory. During the latter half of the year fever of a very bad type prevailed throughout the Circle. The effects of the famine, high prices of food and scanty living all contributed to produce an unhealthy condition of the people.

Tellicherry Circle.

536. There are four taluks in this Circle.

Sanitary works.

537. None. Rupees 150 were spent for sanitary arrangements at two festivals which took place in the Circle. No permanent conservancy establishment is maintained, but, with the exception of some minor towns and villages which are in a dirty state, the larger towns were kept fairly clean.

Epidemics.

538. Cholera and small-pox prevailed throughout the year; during the prevalence of the diseases the people were warned to keep their houses clean, affected persons were isolated from the rest of the people, cholera medicine was freely circulated, and extra vaccinators were employed.

General health.

539. Satisfactory on the whole.

Chittur and Vellore Circles.

540. These two Circles are in the North Arcot District, and one report has been sent for both.

Sanitary works.

541. Excepting Rupees 200 which were spent for improvement of village sites in the Chittur Circle no new works were executed. For conservancy purposes Rupees 7,960 are put down against the Chittur Circle and Rupees 3,950 against Vellore, but no particulars are given as to how many towns and villages, &c., enjoyed the benefits of this outlay.

Epidemics.

542. Small-pox prevailed somewhat about the beginning of the year; active prosecution of vaccination arrested its progress. Fevers also prevailed very largely.

General health.

543. Fair on the whole. Sanitary condition of the Circles much improved.

Salem Circle.

544. Six taluks are included in this Circle.

Sanitary works.

545. Two latrines were constructed and some brushwood removed; Rupees 6,000 were spent for the maintenance of conservancy establishments in twenty-one towns, and the conservancy of all large villages and small towns were attended to.

Digitized by Google

546. Cholera from January to June and small-pox in a mild form during the first quarter of the year prevailed in the Circle. Every precaution was taken to arrest the progress of the diseases.

Epidemics.

General health.

547. Unsatisfactory. Fevers prevailed extensively in the latter part of the year and proved fatal in many instances.

Oosoor Circle.

548. Three taluks make up this Circle.

Sanitary works.

549. None. Conservancy of towns and villages were attended to, but permanent establishments are maintained at only four towns and two villages. The usual sanitary measures were adopted on the occasion of the festival that took place during the year.

Epidemics.

550. Small-pox in a mild form occurred at the end of the year.

General health.

551. Unsatisfactory. Fevers prevailed considerably; sanitary condition of the Circle was fair.

Cuddalore Circle.

552. This Circle, in the South Arcot District, is made up of five taluks.

Sanitary works.

553. Two tanks used for drinking purposes were repaired. The works in progress are—constructing a parapet wall to a drinking-water tank, digging a new tank, deepening a well, repairing three drinking-water tanks, constructing a tunnel and filling in a pond of stagnant water. The usual sanitary arrangements, costing Rupees 300, were made at the Trinomalai festival.

Epidemics.

554. Small-pox prevailed. Two temporary vaccinators were employed during its prevalence.

General health.

555. On the whole fair. Fevers however prevailed at the end of the year in the Tindivanam, Trinomalai, and Tirukoilur Taluks.

Virudachalam Circle.

556. The three other taluks of the South Arcot District are included in this Circle.

Sanitary works.

557. Several tanks and wells were deepened and repaired at a cost of Rupees 2,254, and several others are under repair at an estimated cost of Rupees 748. Rupees 1,047 were spent in improvement of village sites, and a further sum of Rupees 650 will be spent on works that are in progress under this head. A large establishment of conservancy servants and carts is maintained in this Circle, and towns and villages were kept fairly clean. The usual sanitary measures were adopted on the occasion of two festivals that took place in the Circle.

Epidemics.

558. Cholera prevailed throughout the year. In the Chilambaram Taluk especially the disease was very prevalent, causing 1,130 deaths. Some small-pox prevailed in March and April, but not severely.

General health.

559. On the whole favorable; towards the end of the year however fevers prevailed in the Virudachalam and Kallakurchi Taluks. The sanitary condition of the Circle was unsatisfactory. The Vice-President writes thus regarding it:—

Digitized by Google

* * * "The sanitary condition of the villages in the rural parts is not generally satisfactory, but cannot be expected to be other than it is when there is neither knowledge of the first principles of sanitation nor wish to know them. It does not seem to me that the wealthier portions of the Circle are in this respect better than the poorest, and whatever good is done anywhere is only done by great labor, while the time of the Revenue Department is fully taken up otherwise."

Tanjore Circle.

560. This Circle comprises four taluks.

Sanitary works.

561. Twelve small tunnels were built and two are in progress; twenty-four tanks have been deepened and cleaned and the work in ninety-seven others is in progress, and the streets in twenty-four villages and towns were repaired. Conservancy establishments are maintained only in some of the villages and towns, and in some places in the Shiyali and Pattukotai Taluks cinerators have been constructed to burn the rubbish and sweepings. The usual sanitary arrangements were made during festivals.

Epidemics.

562. Cholera and small-pox prevailed throughout the year, causing 2,744 and 9,068 deaths respectively in the district.

General health.

563. Fair.

Tinnevelly Circle.

564. Six taluks are comprised in this Circle.

Sanitary works.

565. No details are given of the works executed. Rupees 1,292 were spent on water-supply, Rupees 2,348 for improvement of village sites, Rupees 598 for maintaining conservancy establishments in eight towns, and Rupees 227 on other sanitary works, viz., arrangements during festivals in five towns.

Epidemics.

566. Some cases of cholera occurred in January and February in the Tinnevelly and Tenkarai Taluks.

General health.

567. Satisfactory on the whole. Fevers, however, prevailed to some extent though not of a bad type. Sanitary condition of the Circle was fair. The special attention of divisional and subordinate Revenue officials are given to it.

Shermadevi Circle.

568. This Circle comprises the three other taluks of the Tinnevelly District.

Sanitary works.

569. A large tank and one well were constructed at a cost of Rupees 1,000 and Rupees 70 respectively. Twenty-six wells were repaired and cleaned out at a cost of Rupees 886, and fifty-three village sites were improved. No particulars are given as regards conservancy, except that Rupees 104 were spent for cleansing purposes after the occurrence of certain fairs and festivals.

Epidemics.

570. Small-pox and cholera prevailed to some extent.

General health.

571. On the whole satisfactory.

Digitized by Google

Vizagapatam Circle.

572. The whole district of Vizagapatam is comprised within this Circle.

573. Rupees 1,286 were spent for sinking and repairing wells and tanks in villages where water was scarce. In some instances the villagers also contributed an equal sum of money to that sanctioned by the Local Fund Board. Several roads were made and trees planted. Rupees 4,239 were spent for the maintenance of conservancy establishments at the cusbah stations, and Rupees 437 were spent on other minor sanitary works including the sanitary arrangements at two festivals which took place during the year.

Sanitary works.

Epidemics.

574. Cholera and small-pox prevailed considerably throughout the year, causing 4,456 and 548 deaths respectively.

General health.

575. Unsatisfactory. Cholera, small-pox, fevers, and bowel-complaints were very prevalent. The poorer classes suffered very much from scarcity and high prices of food.

Nilgiri Circle.

576. In this Circle is comprised the whole of the district.

Sanitary works.

577. None. Rupees 410 were paid for toties employed on the Coonoor Ghat..

Epidemics.

578. Small-pox prevailed to a slight extent, and a few cases of cholera occurred in May and June.

General health.

579. Fair. Malarious fevers, however, were more or less prevalent.

Digitized by Google

Statement showing the Births and Deaths, Estimated Available Income and Estimated Expenditure for Sanitation and Vaccination during the year 1878-79 *in the Local Fund Circles of this Presidency.*

Districts.	Local Fund Circles.	Population.	Birth-rate per 1,000 of Population.	Death-rate per 1,000 of Population.	Cholera per 1,000 of Population.	Fever per 1,000 of Population.	Small-pox per 1,000 of Population.	Bowel complaints per 1,000 of Population.	Available Income ⅓ Land-cess.	Amount allotted for Sanitary purposes.	Rate per cent. of Sanitary Expenditure to Available Income.	Amount allotted for Vaccination.	Total Number Vaccinated.	Total Births.
Bellary	Bellary	645,009	5·3	39·7	3·4	13·0	0·1	2·9	25,000	1,932	7·7	2,590	6,297	3,479
	Gooty	644,157	5·4	51·5	2·6	10·0	0·1	3·2	33,333	5,830	17·4	2,260	4,475	3,535
	Penukonda	376,649	4·3	46·8	1·7	28·2	0·7	2·0	14,333	1,270	8·8	1,280	1,810	1,640
South Canara ...	Canara	918,042	17·5	36·4	0·4	18·9	0·8	5·1	29,000	2,170	7·4	5,460	13,205	16,082
Chingleput	Chingleput	497,586	17·5	17·3	0·1	4·9	1·4	1·8	20,000	3,000	15·0	1,870	9,987	8,739
	Saidapet	436,937	12·5	19·1	0·6	8·6	0·3	1·5	16,333	1,370	8·3	1,870		5,499
Coimbatore	Coimbatore	1,762,679	7·1	16·7	0·2	7·9	0·9	1·5	64,333	24,000	37·3	7,990	46,151	12,501
Cuddapah	Cuddapah	800,852	5·1	44·4	3·9	35·8	0·1	0·4	46,733	10,000	21·3	3,270	5,914	4,110
	Madhanapalle	550,115	3·0	35·3	0·2	28·8	0·6	2·3	23,333	1,896	8·1	3,000	5,516	1,671
Ganjam	Chetterpore	1,002,464	15·8	29·2	8·3	15·5	0·7	0·5	32,666	7,000	21·4	4,300	15,158	15,875
	Chicacole								23,333	7,000	30·0	2,430		
Godavari	Cocanada	871,864	18·1	35·0	5·5	11·1	9·6	0·7	58,333	9,400	16·1	5,150	20,077	15,775
	Ellore	720,239	19·8	40·2	6·6	9·3	13·4	0·5	41,666	13,030	31·2	2,280	8,010	14,252
Kistna	Guntoor	678,067	12·0	23·8	2·8	16·5	1·7	0·5	40,000	19,260	48·1	4,000	9,924	8,148
	Masulipatam	773,999	16·9	28·9	5·5	7·0	4·7	0·4	43,333	20,440	47·1	3,220	14,671	13,071
Kurnool	Kurnool	914,233	3·3	48·0	2·1	35·7	0·1	4·4	44,000	10,000	22·7	2,970	3,335	3,073
Madura	Dindigul	1,020,805	8·1	25·1	0·2	15·8	0·3	1·8	36,666	2,000	5·4	3,400	11,344	8,322
	Madura	308,402	5·1	20·6	0·1	12·2	0·8	0·7	47,000	9,000	19·1	6,230	26,342	1,602
Malabar	Calicut	1,487,408	15·5	19·2	0·4	7·2	3·2	1·7	49,333	2,100	4·2	2,520	14,131	23,117
	Tellicherry	740,825	12·3	18·7	0·4	10·9	0·7	1·1	21,666	400	1·8	1,500		9,139
Nilgiris	Nilgiris	72,396	18·0	26·6	0·2	13·7	1·7	4·7	1,063	410	38·5	700	2,334	943
Nellore	Nellore	1,376,483	3·6	28·2	0·2	21·5	0·5	0·5	66,666	15,000	22·5	3,280	14,846	4,937

Digitized by Google

Statement showing the Births and Deaths, Estimated Available Income and Estimated Expenditure for Sanitation and Vaccination during the year 1878-79 *in the Local Fund Circles of this Presidency*—(Continued).

Districts.	Local Fund Circles.	Population.	Birth-rate per 1,000 of Population.	Death-rate per 1,000 of Population.	Cholera per 1,000 of Population.	Fever per 1,000 of Population.	Small-pox per 1,000 of Population.	Bowel complaints per 1,000 of Population.	Available Income ¾ Land-cess.	Amount allotted for Sanitary purposes.	Rate per cent. of Sanitary Expenditure to Available Income.	Amount allotted for Vaccination.	Total Number Vaccinated.	Total Births.
North Arcot	Chittur	2,014,254	7·2	25·2	0·03	13·3	1·0	1·3	76,666	9,290	12·1	4,230	18,331	14,523
	Vellore								32,083	4,226	13·1	2,700	17,152	
Salem	Oosoor	553,790	3·9	31·7	0·1	15·4	0·6	1·0	24,666	5,500	22·2	2,520	11,978	2,168
	Salem	1,412,572	8·3	22·5	0·4	11·2	2·1	1·0	57,333	8,000	13·9	3,720	17,162	11,867
South Arcot	Cuddalore	1,141,138	10·3	22·3	0·6	7·7	2·6	8·2	58,333	7,570	12·9	2,960	11,586	11,792
	Virudachalam	614,186	10·0	24·6	2·2	11·1	2·3	0·4	30,000	12,070	40·2	1,720	4,612	6,163
Tanjore	Negapatam	889,061	26·7	30·3	1·9	3·0	5·0	0·8	40,000	39,303	98·2	2,950	17,901	23,774
	Tanjore	1,083,759	23·0	26·7	0·9	2·8	4·1	1·1	42,000	17,610	41·9	3,500	15,326	24,952
Tinnevelly	Shermadevi	463,287	18·7	28·4	0·2	9·7	0·3	3·0	19,000	2,000	10·5	2,000	6,709	8,691
	Tinnevelly	1,230,342	12·1	20·1	0·1	5·4	0·3	2·8	45,666	9,000	19·7	4,540	22,365	14,937
Trichinopoly	Trichinopoly	1,199,155	14·6	24·2	0·4	8·6	1·4	1·3	41,000	14,000	34·1	3,600	14,760	17,506
Vizagapatam	Vizagapatam	1,544,529	14·3	18·1	2·6	10·9	0·3	0·7	66,666	10,000	15·0	9,200	25,462	22,105
	Total ...	28,745,279	11·6	27·5	1·6	12·8	1·9	1·5	13,11,486	305,067	23·2	120,210	416,871	338,978

Digitized by Google

SECTION VI.

GENERAL REMARKS—PERSONAL PROCEEDINGS.

580. In January and February, in accordance with Proceedings of Government, Nos. 2717 and 3100, dated 13th September and 13th October 1877, I was employed in Calcutta as a member of the Committee appointed to report on the necessary measures for taking the Imperial Census of 1881.

Imperial Census Committee.

581. The arrangements in connection with the more complete transfer of the control of vaccination to the Sanitary Department necessitated attention in the early part of the year. The Vaccine Rules had to be revised and consolidated, and Government was pleased to approve of a suggestion of mine that the Inspector of Vaccination should be also Deputy Sanitary Commissioner and take a part in the general sanitary inspection of the country. These arrangements have been in force during the year and have worked well. Surgeon Laing, the Inspector of Vaccination and Deputy Sanitary Commissioner, made a lengthened tour through the Northern Division of the Presidency and reported, not only on the progress of vaccination, but on the sanitary condition of municipal towns.

Vaccine Department.

582. Efforts have been made also during the year to extend the duties of the Deputy Inspectors of Vaccination to those of ordinary Sanitary Inspectors. The members of this grade have been given a certain time to make themselves acquainted with a few elementary books on hygiene, and they have been warned that after a given date they will be required to pass an examination in certain subjects. They have also been required to submit monthly reports showing the sanitary condition of the villages visited, copies of which reports are submitted direct to the local authorities for such notice as may seem necessary.

Employment of Vaccine Inspectors as Sanitary Officers.

583. Owing to the generally defective education of the men employed in the Vaccine Department progress has been but slow, and it has been necessary to postpone the date first fixed for the examination of the Deputy Inspectors in hygiene. The subject will be noticed in future reports.

584. In G.O., No. 227, of 6th February 1878, my letter of the 14th November 1877, in which I urged the importance of giving Local Fund Boards and Municipalities the optional power of compelling vaccination within their respective areas, was referred to the Revenue Department for consideration and report. A considerable majority of the local authorities have reported in favor of my suggestion, and a Bill will shortly be prepared giving to those local authorities, who wish to avail themselves of it, the requisite powers to insist on compulsory vaccination.

Compulsory vaccination generally approved of.

585. Some important references were made to the Sanitary Commissioner in connection with the tabulation of the results of the test census made in March 1878 in certain famine districts; a review and analysis of the returns were submitted to Government in letters Nos. C. 13 of 20th June and C. 21 of 10th July 1878.

Famine Test Census.

586. Under G.O., No. 830, of 1st June 1878, I was employed from June to September as a member of a Committee to report on certain questions connected with the Cinchona estates and local manufacture of alkaloids.

Committee on local manufacture of Cinchona Alkaloids.

Digitized by Google

587. The issue of questions by the Famine Commission in respect to relief camps threw a good deal of work on my office. The replies of medical officers in charge of camps were submitted to the Sanitary Commissioner, who was required to answer fully such of the questions as involved statistical data in regard to the effects of famine on population.

Reports for Famine Commission.

588. The duties of the Sanitary Department in connection with famine administration were not so onerous in 1878 as in 1877. The special establishment of Sanitary Inspectors was discontinued at the end of 1877. At this time the relief operations generally were well in hand and the camps and relief centres duly supplied with medical aid. Epidemic diseases had largely subsided and the condition of the population was everywhere improving at the beginning of 1878. Inspections of relief centres were made in Salem, Coimbatore, and North Arcot by the Sanitary Commissioner and by the Deputy Sanitary Commissioner in Ganjam, Vizagapatam, and Godavari.

589. It was thought desirable to place on record the more salient points of the experience gained by the Sanitary Department in regard to the physical effects of food-scarcity on population, and in the Sanitary Report for 1877 was incorporated a paper on the "Medical and Sanitary Aspects of Famine" by myself, with "Notes on Famine Pathology," by Surgeon-Major A. Porter, M.D. These papers have been favorably noticed by British and Foreign Medical Journals as important contributions towards the better knowledge of the physiological and pathological history of famine.

590. It may safely be asserted that in no previous Indian famine has so much attention been given to the investigation of the actual causes of the decrease of population. Such opportunities for investigation as were before us were utilised to the best of our ability, but no doubt many points require still further inquiry.

591. My views in respect to the effect of food dearth on the vitality of the population, enunciated at an early period of the famine, have since been abundantly verified by experience in other parts of India.

They were—

(1.) That deficiency of food not only caused diseases of innutrition, but that the conditions of famine aggravated the ordinary epidemic diseases of the country.

(2.) That the peculiar effect of famine was to bring about a fatal form of bowel disease, with degeneration of the tissues concerned in the assimilation of food.

(3.) That the reproductive powers of the population were affected in proportion to the intensity and long continuance of food-scarcity.

(4.) That the male population suffered, relatively, more than the female.

592. In regard to all these points evidence has been recorded in my Annual Report for 1877, in the present volume, and in papers submitted to the Famine Commission.

593. The Government of India having appointed a Commission to inquire into the facts of the late famine and to suggest means for encountering similar calamities in future, I refrain from entering upon topics that may more appropriately be dealt with by the Commission, simply recording that I have been in communication with the Commission throughout the last half of the year, and have afforded all the information at my disposal.

594. During the famine period a special health establishment was sanctioned by Government, on my suggestion, for the town of Madras. The establishment was paid by the Government and not by the Municipality. It was discontinued at the end of 1878, but both the President and myself recommended that the services of a health officer should be secured for the town. The only difficulty was in the matter of salary. The President of the Municipality stated that only 300 rupees a-month could be afforded by the municipal funds, and we jointly suggested that the appointment on such a salary should be offered to one of the resident medical officers in Madras in addition to his own duties. The Surgeon-General, Indian Medical Department, held the view that the duties required

Health Officer for Madras.

Digitized by Google

of a health officer were too onerous to be discharged by an officer holding another appointment, and declined to allow any of the medical officers employed at the Presidency to accept the appointment as an additional charge. In Calcutta an officer holding other appointments has discharged the duties of health officer to the Municipality to the satisfaction, I believe, of the rate-payers; and, although I should prefer to see the Madras Municipality securing the entire services of a Sanitary Officer, I would rather have one on the same footing as in Calcutta than none at all.

595. The order of Government, No. 159, of 29th of January, disposing of this question, leaves it open to the President of the Municipality to secure the services of a private practitioner as Sanitary Officer for the town, but up to this time no one has been appointed. I trust the newly-elected Municipal Commissioners will lose no time in securing the services of a duly qualified Sanitary Officer.

Water-supply of Lawrence Asylum.

596. Some cases of enteric fever having occurred in the Lawrence Asylum at Ootacamund, and the water-supply arrangements being found defective in regard to protection of the water from pollution, I advised that the water should be brought down from its source in a closed pipe and delivered under pressure. The District Engineer was directed to prepare the necessary plans and estimates in G.O., No. 200, of 28th May 1878.

Observation on level of ground water.

597. During the year Government sanctioned in G.O., No. 1699, of 4th April 1878, the continuance of observations in selected localities in regard to the fluctuation of the level of subsoil water. These observations are carried on in the Public Works Department; but, as the level of subsoil water has probably an important bearing on public health, it is hoped that the results of the observations may be placed at my disposal.

Village sanitation.

598. The subject of village sanitation has occupied a good deal of attention during the year. The Government of India offered a reward of Rupees 500 for the best English Sanitary Primer suitable for the instruction of the natives of India in elementary hygiene, and attention has been repeatedly called by the Army Sanitary Commission and Secretary of State for India to the importance of village conservancy. In the papers submitted to me on this subject I made the following observations, and, after much thought, I do not know that I can add anything of importance:—

"In village sanitation there are two things which might, to a great extent, be managed under the direction of the village officials, but which in practice are found to be exceedingly difficult to carry into execution with effect. Every village ought to have (1) clean water for domestic purposes, and (2) arrangements for the removal of human and animal excrementitious matters.

"In the matter of water-supply a great deal has been done from time to time, but it does not seem practicable to teach the present generation the consequences of fouling their wells. In this country open dipping wells or tanks are the rule, and although in most villages the caste people have a source of water-supply reserved for themselves, yet in practice they are no more careful in dealing with their water than the Pariahs whom they compel to use separate wells or tanks.

"And, again, in regard to village conservancy, the habits of the people are very difficult to alter. The Army Sanitary Commission seem to think that it is a very simple matter to get the people to keep their cattle outside of their houses. We have not found it so simple in this part of India. Village communities originally clustered their houses together for mutual protection from robbers and wild beasts, and until the ryots can be induced to build their homesteads on their lands, I am afraid that the village home must be also the home of the cattle. Many of our rural villagers are still in need of protection for themselves and cattle, and it would not be expedient or practicable in the present condition of the country to legislate for the exclusion of cattle from dwelling places. After many years of close and practical acquaintance with village life in India, I am entirely in accord with His Excellency the Viceroy in Council, 'that the Government must be content to advance slowly in the path of rural sanitary reform.'

"And I would further add that too much must not be expected of the present generation, whose hereditary ignorance and prejudices are not to be changed by any rules or regulations we may draw up for their guidance.

"In this Presidency Local Fund money is largely expended on sanitary works, especially water-supply and conservancy. But the works of real importance are such as should and must be done by villagers themselves. For instance, every village away from a running stream of water should have one or more masonry wells with a bucket and windlass for drawing water, a sweeper for removing human ordure, or a plot of land should be set apart for the people to use. Cattle manure should be removed from the house enclosures to a spot outside the inhabited village. All these are things that might and ought to be done by villagers themselves, and they are the

Digitized by Google

most important items in regard to village sanitation. In these matters and also in the compulsory registration of births and deaths the existing law as to village service may require revision (letter, No. 139, of 22nd August 1878.)"

599. As a practical contribution towards the question of village sanitation, it may be mentioned that the entire staff of Deputy Inspectors of Vaccination, 38 in number, are now required to report in regard to each village they visit: first, the number of births and deaths registered in the previous month; second, the condition of the water-supply; third, the condition of the village as to cleanliness, drainage, &c.; and fourth, the prevailing diseases, if any. The returns are made out in tabular form for each month and a copy is sent direct to the President of the Local Fund Circle for such action as he may deem necessary. So far as we have gone, the complaints are almost universal as to the uncleanly condition in which villages are kept, and especially to the accumulation of manure heaps in the streets or backyards and the defilement of the waste lands around village sites by human excrement.

600. I may here express my conviction that the village communal system which obtains in Southern India, and on which the proper administration of the country mainly depends, is not so perfect in practice as it may appear on paper; and that, for efficient sanitary administration of the rural districts, the duties and emoluments of the inferior village servants, at least, require revision. At present it seems to be nobody's business to see to the cleanliness of a village, yet nothing could be more simple under a communal system, than to fix the duties and responsibilities of such sanitary service as may be needful for the health and comfort of the village population. Every village has, in theory, one or more sweepers whose public duties ought to be those of scavenger for the community, but who do not perform their assigned duties; and it seems only right that some inquiry should be made in regard to the emoluments and position of such servants, and why the original uses of such servants in village life should have been lost sight of.

601. An important suggestion was made by Mr. Pennington, the Collector of Tinnevelly, during the year that the ryots should be encouraged to build farmsteads on their lands instead of concentrating all their cattle at night within the villages. The present system is no doubt very wasteful of manure and bad for the sanitation of the villages, and it is to be hoped that with better notions of agriculture the ryots may be brought to see the advantage of housing their cattle on the lands in their occupation. There are very few districts in which this practice could be safely followed at present, as regards wild beasts and thieves, and the improvement really required is that the people build their houses on the lands instead of crowding together in the limited spaces of village sites. Changes of this nature must necessarily be of slow development, and cannot be expected to remedy the existing evils of neglected sanitation of village sites.

602. During the year inspections were made in Coimbatore, Nilgiris, Salem, North Arcot, Madras and Chingleput Districts by the Sanitary Commissioner and by the Deputy Sanitary Commissioner in Ganjam, Vizagapatam, Godavari, Kistna, Nellore, Canara and Malabar Districts.

(Signed) W. R. CORNISH, F.R.C.S.,
Sanitary Commissioner for Madras.

COONOOR,
1st June 1879.

Digitized by Google

APPENDIX I.

ANNUAL REPORT OF VACCINATION FOR THE YEAR 1878.

Digitized by Google

APPENDIX I.

ANNUAL REPORT OF VACCINATION FOR THE YEAR 1878.

I have the honor to submit the Annual Report for the year 1878, and according to the instructions of the Sanitary Commissioner it has been made out for the calendar year as was the custom prior to 1870.

2. The work accomplished by the vaccine staff during the year was less than that of the previous year; the total number of operations being 521,760, showing a decrease of 259,180 cases below that of the previous year.

The decrease was due principally to the abolition of famine-relief camps, &c., where vast numbers of persons were brought together and enabled Vaccinators to have access to those reauiring vaccination. On looking at the figures in the margin it will be seen that there is a decrease in the number of primary vaccinations when compared with that of the previous year, and this was due mainly to the great mortality among children and low birth-rate.

Primary Vaccination.		
1873-74	...	363,399
1874-75	...	428,667
1875-76	...	388,067
1876-77	...	478,727
1877-78	...	776,705
1878	...	515,840

3. The regular staff of Deputy Inspectors and Vaccinators was as follows:—

31 Deputy Inspectors	... ...	1st-class.
7 do. do.	... ...	2nd "
212 Vaccinators	... ...	1st "
375 do.	... ...	2nd "
105 Probationers.		

Thirty-seven First-class and 43 Second-class Vaccinators are employed by Municipalities. During the year in many places extra hands were temporarily employed on account of the prevalence of small-pox.

4. The following table shows the agency by which the vaccine operations were carried out:—

—	Total No. Vaccinated.		Increase.	Decrease.	Net Decrease.
	1878.	1877-78.			
Vaccine Circles and Districts	411,021	569,555	..	158,534	..
Private Vaccinators	160	471	..	311	..
Private Estate Vaccinator	5,690	6,113	..	423	..
Medical Subordinates	21,386	28,584	..	7,198	..
Municipalities (including Madras) ..	83,106	175,623	..	92,517	..
Civil Dispensaries	397	584	..	187	..
Railway Apothecaries	..	10	..	10	..
Total ..	521,760	780,940	..	259,180	259,180

5. As ordered by Government in their review of last year's Vaccination Report, para. 12, the work done in the Presidency town has been entered under Municipalities. On the 1st April 1878 the vaccine staff belonging to the Madras Collectorate was made over to the Municipal Commissioners. The returns from the Military Cantonments have been excluded from the General Return according to G.O. No. 275, dated 27th February 1879, and are given separately.

Digitized by Google

6. During the year I inspected the work in the districts of Ganjam, Vizagapatam, Godavari, Kistna, Nellore, Chingleput, Malabar, and South Canara. The Inspection Notes of these districts are given in detail under the head of the respective Local Fund Vaccine Circles.

The work in the Presidency town was inspected occasionally when I was in Madras.

7. A Second-class Deputy Inspector of Vaccination having been sanctioned by Government for South Canara, First-class Vaccinator P. Chandoo, of the Malabar District, who had nearly completed 14 years' service, was appointed to the post in January 1879.

The First-class Deputy Inspector of Vaccination (Mr. Williams) of the South Canara District was dismissed from the department in January, as he was quite unfit for the post he held. For some years this man had given Dr. Shortt, my predecessor, constant trouble, and although he had been punished, still he did not improve. In December I was at Mangalore and found the work of this Deputy Inspector in a most disgraceful state.

8. The Deputy Inspector of Vaccination C. Nursimooloo, of the Vizagapatam Circle, was transferred, as he was most unpopular both with the Vaccinators and people, to the Guntoor Circle, Kistna District.

9. Many of the Local Fund Boards give both batta and peon to the Deputy Inspectors, while other Boards allow neither one nor the other.

The Deputy Inspectors of Salem, Gooty, Vizianagram and Chicacole receive a monthly consolidated travelling allowance whether they go into camp or not.

It would be well, I think, if all the Local Fund Boards gave a fixed batta to Deputy Inspectors when out in camp. At present different rates of batta are given by the various Boards: some Deputy Inspectors being allowed 12 annas a day, some 8 annas, and so on. With regard to Vaccinators it is the same: some Local Fund Boards allowing 8 annas a day, some 2 annas, &c., and some do not give any batta to Vaccinators.

10. During the year there were numerous applications from Local Fund Boards and Municipalities for qualified Vaccinators, and in some cases it was very difficult to get men. It is very advisable that all Local Fund Boards should make arrangements for the employment of paid probationers. These probationers could be trained under the Vaccinators, and when qualified be appointed to vacancies that occurred in the circle.

11. According to G.O., No. 1,477, dated 21st August 1878, one Vaccinator was employed to work in both Erode and Karur Municipalities, but as this was not found to work well it was given up and a Second-class Vaccinator has now been appointed to each Municipality.

12. The Deputy Inspector of the Trichinopoly District states (as he did in last year's report) that the minimum number of operations fixed in G.O., No. 1,591, of 2nd September 1876 for First and Second-class Vaccinators is too low for his district considering how easy vaccination can be carried on there. He states that the Vaccinators will not do more than the standard fixed, although many more cases could very easily be done.

13. Three peons are allowed to the Deputy Inspector of the Madras Collectorate, and as one is sufficient, I proposed to the Municipal Commissioners that the employment of two peons should be done away with and in their stead two paid probationers on Rupees 6 each per month be entertained. These probationers, after having learnt the work, could then act for any Vaccinators who went on leave or were sick.

14. Many Deputy Inspectors recommend compulsory vaccination as the only means of overcoming the prejudices of the people.

All the Village Munsifs, Kurnums, &c., should be made to take more interest in vaccination, and it would be well if they were ordered to have all their children vaccinated as an example to the people. A list of the vaccinated people should also be kept in the villages and shown to the Vaccinators on their visits.

Digitized by Google

15. The quality of the working lymph in most of the districts was good throughout the year. A supply of calf lymph was received from London from "The Association for Promoting Vaccination direct from the Calf," but the results obtained from it were not successful.

16. The Malabar District has two distinct Local Fund Circles, but there is only one Deputy Inspector for the whole district. Dr. Shortt, my predecessor, suggested that two Deputy Inspectors should be sanctioned for this district, but it has not been done, and considering the area and population one man is not sufficient for the work.

17. The following tablé shows separately the work done by the vaccine staff for the nine months of the year commencing from April to December 1878:—

——	Total.	Successful.
Vaccine Circle and Districts	284,288	253,979
Private Vaccinators	21	16
Private Estate Vaccinators ...	4,331	3,778
Medical Subordinates	17,650	9,168
Municipalities (including Madras).	48,594	37,348
Civil Dispensaries	207	120
Railway Apothecaries	...	...
Total ...	355,091	304,409

18. Small-pox was prevalent during the year in the Districts of Godavari, Kistna, Nellore, North Arcot, Coimbatore, Nilgiris, South Canara, Malabar, Chingleput, Madras, Trichinopoly and Tanjore. In the Godavari District it was very prevalent, and the mortality from it was great. Seven temporary Vaccinators were employed: two in the Cocanada Circle for three months, and five in the Ellore Circle for six months.

Extra Vaccinators were also entertained in the Chingleput and Malabar Districts when small-pox was prevalent.

19. The total number of children successfully vaccinated under one year of age was 44,428, showing a decrease of 19,747 below that of the previous year. The decrease is mainly due to the low birth-rate.

20. The cost of each successful case varies in the different districts. It was highest in the Jeypore Hill tracts, viz., Rupees 1-6-1, and the lowest was North Coimbatore Circle, viz., 2 annas and 2 pies. For the whole Presidency, excluding the work of Medical Subordinates and private Vaccinators, the cost of each successful case was 5 annas and 6 pies. This is higher than that of the previous year by 1 anna and 6 pies.

The following table shows the total cost of the department and the sources from which the charges on account of vaccination were met:—

	RS.	A.	P.
Imperial Funds	608	2	3
Provincial „	19,718	10	10
Local „	1,11,103	0	0
Municipal „	15,494	0	5
Contribution from Zemindars and other estate owners ...	1,656	0	2
Total ...	148,579	13	8

21. The number of private Vaccinators is decreasing every year. This year returns from only two private Vaccinators were received, whereas in 1873-74 thirty-five men worked. The small number of private Vaccinators who worked last year was due to famine. These men submit their returns irregularly, but the Deputy Inspectors have been ordered to give them every help and encouragement.

Madras.	Nellore.	Bellary.
Vizagapatam.	Malabar.	Trichinopoly.
Madura.	Cuddapah.	Tanjore.
Godavari.	Ganjam.	Tinnevelly.
Salem.	North Arcot.	Kistna.
Coimbatore.	Kurnool.	

22. Batta to the extent of Rupees 2,309-15-9 was spent in the districts named in the margin on account of supplying fresh lymph during the year. In some districts no batta was spent at all for this purpose.

Digitized by Google

23. On comparing the work done in the different districts it will be found that the largest number of cases was done in the Coimbatore District.

24. Fines to the extent of Rupees 61 were recovered from Deputy Inspectors for carelessness and laziness.

BELLARY DISTRICT—BELLARY CIRCLE.

Establishment.

1 First-class Deputy Inspector—Tarachund.
2 do. Vaccinators.
11 Second-class do.
Area, 4,581 square miles.
Population, 595,172.

The numbers vaccinated during the past and previous years are given below :—

1877-78	6,728
1878	6,297

showing a decrease of 431 cases, which the Deputy Inspector accounts for—

1*st*—By the absence of 4 Vaccinators, two having been on leave and two sick for the greater part of the year. No substitutes were appointed to act for these men.

2*nd*—Owing to the great prevalence of fever throughout the district various kinds of obstructions still exist to the spread of vaccination, and it is not only difficult to obtain children to be operated on, but when vaccinated the people refuse to allow lymph being taken from their arms. The only remedy for this, the Deputy Inspector believes, is to make vaccination compulsory. The want of assistance from the Revenue authorities is complained of as one of the chief difficulties in pushing on vaccination in the circle. No reports of the prevalence of small-pox were received during the year. The conduct of the staff, with the exception of two men, is reported good. The number of children vaccinated under one year was 1,707 ; 850 being males and 857 females. The lymph in use is good and effective. No batta was paid to mothers for supplying lymph. The cost per successful operation was Annas 9 and Pies 6. The Local Fund Board sanctioned in 1878 a travelling batta of 12 annas per diem to the Deputy Inspector, but it has not been allowed.

PENUKONDA CIRCLE.

Establishment.

1 Second-class Deputy Inspector—O. Cundasawmy Reddi.
3 First-class Vaccinators.
1 Second-class Vaccinator.
Area, 2,881 square miles.
Population, 376,715.

The Deputy Inspector of this circle reports 1,810 operations during the year under notice, with a success of 81·21 per cent. ; the results in 195 cases were not ascertained. The total, comprising 927 males and 883 females, shows a decrease of 564 cases when contrasted with the number vaccinated during the preceding year. This decrease the Deputy Inspector attributes to the small number of births and to the high death-rate for the past year. First-class Vaccinator T. Soobramania Pillay obtained the largest number of cases, viz., 712. Obstructions to the spread of vaccination exist in most parts of the circle, and the prejudices of the people against its practice still continue. The Deputy Inspector states that the Survey Department, which commenced work in the Penukonda Taluk in the latter part of the year, retarded the spread of vaccination to a certain extent owing to the village heads and servants being engaged with them in the fields. In many villages visited the Vaccinators were unable to get cases for vaccination simply

Digitized by Google

from want of help from the village authorities, as the people obey them, while the persuasions and explanations of the Vaccinators are useless. The Deputy Inspector recommends that for the extension of vaccination the local authorities should take more interest in it and issue stringent orders in the District Gazette to the Village Kurnums to help the Vaccinators in their work. If this were done he thinks that the objections of the people could then easily be removed and vaccination largely carried on. 14 certificates of vaccination were granted to candidates for Government appointments. Small-pox was not reported to be prevalent in the circle, but there were five fatal cases in one of the relief-camps. 561 subjects were vaccinated under one year of age; of these 509 were successful. The conduct of the Vaccinators is reported good. The cost per each successful operation is Annas 11 and Pies 11.

GOOTY CIRCLE.

Establishment.

1 Second-class Deputy Inspector—Chinnacasavooloo.
4 First-class Vaccinators.
2 Second-class do.
Area, 3,720 square miles.
Population, 609,982.

The Deputy Inspector reports that 4,475 cases were vaccinated during the year under notice with a success of 91·9 per cent. The results in 114 cases were not known. On comparison with the work of the preceding year there is a large decrease of 1,379 cases, which the Deputy Inspector attributes partly to the abolition of famine-relief camps, &c., and also that no vaccination was done in the Tadpatri Taluk for three months. On 28th January the First-class Vaccinator belonging to the Tadpatri Taluk died, and no one was appointed in his place till April. Small-pox did not make its appearance in this circle, but cholera did in a mild form, and fever was very prevalent. In some villages great objections to vaccination still exist. It is very difficult also to obtain lymph from vaccinated children, and no provision is made for paying batta to the mothers who supply it. Compulsory vaccination should be enforced, and much more work might be done if the village authorities gave assistance and if they would have their children vaccinated before the villagers. Batta should also be paid to mothers as an inducement to permit the Vaccinators to extract lymph from the arms of vaccinated children. The conduct of the staff is reported as good. The average cost of each successful operation was 8 annas. 1,522 infants under one year of age were vaccinated during the year. The Deputy Inspector complains that no peon or batta is allowed him.

CUDDAPAH DISTRICT—CUDDAPAH CIRCLE.

Establishment.

1 First-class Deputy Inspector—C. Theroovengadum Moodelly.
7 do. Vaccinators.
7 Second-class do.
3 paid Probationers.
1 Peon.
Area, 4,620 square miles.
Population, 784,750.

The Deputy Inspector reports 5,914 operations during the year under review against 12,692 in the preceding year, showing a decrease of 6,778 cases. This decrease was due, first, partly to the abolition of famine-relief camps, &c.; secondly, to the great prevalence of malarious fever; and thirdly, to the prevalence of cholera in certain taluks of the circle. The Deputy Inspector further adds that the Revenue

Digitized by Google

authorities (taluk) did not take any interest in pushing on vaccination, nor did they assist the Vaccinators in their work.

The Deputy Inspector recommends vaccination to be made compulsory, as there is great difficulty in getting children, especially those belonging to ryots, vaccinated. The staff of Vaccinators was incomplete during the year, as some were obliged to go on sick leave, some resigned, and the recruits were not accustomed to the work. The number of children vaccinated under one year was 241, which is very low. The parents have, however, great objection to their children being vaccinated when they are very young, as they believe their health will be ruined. The conduct of the Vaccinators is reported good. The average percentage of success was 79·47, and the cost of each successful case was Annas 10 and Pies 11. The Local Fund Board sanctioned, in their Resolution dated 10th August 1878, a travelling allowance of 12 annas per diem to the Deputy Inspector when in camp, and 8 annas to Vaccinators of the first class, and 4 annas to second class and probationers.

MADHANAPALLE CIRCLE.

ESTABLISHMENT.

1 First-class Deputy Inspector—I. Vardarajulu Naidoo.
4 First-class Vaccinators.
8 Second-class do.
4 paid Probationers.
1 Peon.
Area, 3,430 square miles.
Population, 550,169.

The Deputy Inspector reports 5,516 operations against 7,618 in the preceding year. The comparison shows a large decrease of 2,102 cases, attributable, first, to abolition of famine-relief camps in all the four taluks; secondly, to the great prevalence of fever; and thirdly, that for four successive months there were four Vaccinators short and also five were on leave. The Vaccinators constantly give up their appointments on the plea of sickness, &c., and their places sometimes are not filled up for some time owing to the absence of qualified candidates. Vaccination in remote places is backward, as the people are afraid of the operation, and frequently, when a Vaccinator enters a village, the people hide their children. The difficulty in procuring lymph from vaccinated children for transfer is complained of by the Vaccinators, as the parents will not allow lymph being taken after vaccination. The total of infants under one year of age vaccinated was 126, consisting of 79 males and 47 females, and the work in this respect is very low for a staff consisting of 16 Vaccinators, the average, about ten in a month, not being even one case for a Vaccinator. Assistance was also rendered, the Deputy Inspector states, by the Revenue authorities in pushing on vaccination. The Deputy Inspector of this circle is very lazy, and he has since been reprimanded and fined. Second-class Vaccinator Veerasawmy performed 844 operations, this being the largest number amongst the staff. The cost of each successful operation was Annas 11 and Pie 1.

COIMBATORE DISTRICT—NORTH COIMBATORE CIRCLE.

ESTABLISHMENT.

1 First-class Deputy Inspector—Syed Abdulaziz Saib.
2 do. Vaccinators.
4 Second-class do.
10 paid Probationers.
2 temporary Vaccinators.
1 Peon.
Area, 3,400 square miles.
Population 795,610.

Digitized by Google

The Deputy Inspector reports 24,686 operations during the year under review. Of these 20,931 were done by the permanent staff and 3,755 by the temporary Vaccinators. The total comprises 12,751 males and 11,935 females, with a percentage of 97·41 of success.

There is a decrease of 4,347 cases when compared with the work of the preceding year. The decrease is attributed to the continuance of famine during the greater part of the year all over the district, and to the abolition of famine-relief camps, &c., where Vaccinators had found every facility in vaccinating hundreds of people in a single week. The Deputy Inspector states that it is now difficult for the Vaccinators to get cases (even visiting two or three villages in a day), and so obtain the minimum number required. Temporary Second-class Vaccinator B. Cumuroodeen operated on the largest number, viz., 2,592, among the whole staff. No great objections exist against vaccination, but there is a difficulty experienced in extracting lymph from the arms of children vaccinated, as both the educated and uneducated people believe that such weakens the children and spoils the effect of vaccination. The withdrawal of peons by Tahsildars in helping Vaccinators in their work is often complained of, for when such assistance is given vaccination is carried on with great facility, and also the extraction of lymph from vaccinated children is less opposed by the people. Small-pox was not prevalent in an epidemic form in the circle, but wherever it made its appearance, immediate steps were taken to check its progress. The total number of deaths from small-pox was 1,000 against 1,358 during the preceding year. The Deputy Inspector brings to notice that the village officials do not report to the Tahsildars the appearance of small-pox in their villages until a death occurs, for which they are required to submit a return at the end of the month. The Deputy Inspector states that 100 cases a month required from all Vaccinators and 112 from probationary Vaccinators working in the plains are too high at present owing to the effects of the late famine on the people, and that the number should be reduced to 70 successful cases per month. The number of infants vaccinated under one year of age was 2,746, with a success of 96·27 per cent.; of these 1,501 were males and 1,245 females. 45 certificates of vaccination were granted during the year. The vaccine lymph in use is effective and good. The conduct of the staff is reported to be satisfactory with the exception of one man. The cost of each successful case was Annas 2 and Pies 2.

SOUTH COIMBATORE CIRCLE.

Establishment.

1 First-class Deputy Inspector—S. Moonisawmy Naidoo.
2 do. Vaccinators.
3 Second-class do.
9 paid Probationers.
1 Peon.
2 temporary Vaccinators.
Area, 2,871 square miles.
Population, 922,156.

The Deputy Inspector reports 21,465 operations, comprising 11,020 males and 10,445 females. The figures show a decrease of 15,640 cases when compared with the work of the previous year. This is mainly attributed to the abolition of famine-relief camps which were in force during the past year, and where large numbers of people were vaccinated; owing to the low birth-rate the Vaccinators were only able to get a small number of children for vaccination, and so their extra payments were proportionately curtailed by the order of the President, Local Fund Board. Probationary Vaccinator Syed Moideen vaccinated the largest number of cases, viz., 1,830, and this was due to there being large relief-camps in his taluk. No obstructions existed in this circle to the spread of vaccination, for almost all the Tahsildars rendered great assistance. The Deputy Inspector states that the President, Local Fund Board, Mr. Webster, has rendered valuable aid in pushing on vaccination in the circle. No batta was given to mothers for supplying lymph, as the provision

Digitized by Google

for this purpose had only recently been made. The Deputy Inspector states that no batta is allowed to Vaccinators, and he recommends that it be granted. 3,204 infants under one year of age were vaccinated; of these 3,077 were returned as successful. 23 vaccination certificates were granted to candidates who went up for Government examinations. The conduct of the Vaccinators, with the exception of a few probationers, was good. The working lymph in use was good. The cost of each successful case was 2 annas and 3 pies.

CHINGLEPUT DISTRICT.

Establishment.

1 First-class Deputy Inspector—Mr. A. Stewart.
4 do. Vaccinators.
9 Second-class do.
3 temporary do. for four months.
Area, 2,619 square miles.
Population, 900,857.

The total numbers vaccinated during the past and previous years are as follow:—

1877-78	22,789	(Excluding the work done
1878	9,987	in Red Hills Camp.)

The numerical comparison shows that there is a decrease of 12,802 cases, which the Deputy Inspector accounts for by the abolition of the famine-relief camps, &c. during the year under review. The total comprises 5,648 males and 4,339 females; of this number 670 operations were performed by the three temporary Vaccinators while small-pox was prevailing. The percentage of success was 89·80. The largest number, 884, was obtained by Second-class Vaccinator S. Mahomed Fureed. Small-pox prevailed during the year, especially in the taluks of Chingleput, Madhurantakam and Conjeveram, and three extra hands were entertained to assist the permanent staff for four months to check the disease. Two Second-class Vaccinators were convicted of falsifying accounts—one was sentenced to three months' simple imprisonment and another to a fine of Rupees 15; two were promoted and sent to Municipalities as First-class Vaccinators; one Second-class Vaccinator was dismissed, and one was suspended for one month; a few were fined for carelessness and short work. The number of infants vaccinated under one year of age was 817, and the results in 749 cases were successful. The President, Mr. Price, takes great interest in pushing on vaccination in the district. The President, Local Fund Board, sanctioned, during the latter part of the year, a travelling allowance of 12 annas per diem to the Deputy Inspector when in camp, but he is not allowed any peon as is done in some circles and districts. The conduct of the staff is reported good on the whole. The cost of each successful operation is 6 annas. 17 vaccination certificates were granted to candidates who went up for the U.C.S. Examinations. On the 31st May I proceeded to St. Thomas' Mount to inspect the Deputy Inspector's work, as the President had written to say that he thought he was careless. The records were clean and in good order, as well as the instruments of the two Vaccinators who belong to the Saidapet Taluk. I saw six subjects which had been vaccinated: the vesicles in each were well raised and the lymph appeared good. I warned Mr. Stewart to be more careful in future and to be more constantly on the move.

On the 4th November I left Madras for Tiruvallur, where I remained till the evening of the 5th. At Pooliancoopum (a village about one mile from Tiruvallur) I saw two lymph subjects which had been vaccinated by Second-class Vaccinator Rungasawmy. The lymph in these cases was not good, the vesicles were small, and one child had three vesicles while the other had only two. At this village I also saw 19 old cases of vaccination which had been done by First-class Vaccinator T. Aroomoogum, but these cases had not well marked cicatrices. Two children were vaccinated in my presence. At Poongathoor, a small village beside Pooliancoopum, five children were vaccinated before me, and the people did not appear to have great objections to vaccination. No vaccination had been done in this village for a year.

Digitized by Google

At Tiruvallur vaccination is backward, especially amongst children. I saw sixteen old cases; five of these had been done in March and eleven from June to September. These cases had been vaccinated by First-class Vaccinator Aroomoogum and Private Vaccinator Narainasawmy, and the cicatrices were not well marked. In the Perumbakum Tamil School there were 52 scholars; of these 39 had been vaccinated, 11 had small-pox marks, and 2 were unprotected. Most of those who had been vaccinated were boys studying to compete for Government appointments. At Tiruvallur 14 children were vaccinated before me. On the evening of the 5th November I left Tiruvallur and went on to Tripassoor. At Tripassoor I saw five cases which had been recently vaccinated (of these two were unsuccessful) and fourteen old cases. The lymph in use was not good. Eight children were vaccinated before me, and there did not appear much objection to vaccination. On the 6th November I left Tripassoor and arrived at Utticottah; on the way I inspected vaccination in the following villages, viz., first, at Pullarumbakum I saw two cases which had been vaccinated three days before by Second-class Vaccinator Rungasawmy: two children were vaccinated before me; second, at Oodappay I saw ten cases which had been vaccinated in September, but the cicatrices were not well marked: in this village the people did not appear to object to vaccination, and seventeen children were done before me; third, at Runjaram I saw two children who had been vaccinated a week before, and as both were unsuccessful, they were re-vaccinated: four children were vaccinated before me.

At Utticottah vaccination is very backward, and there were many children going about unprotected. The old cases I saw had not well marked cicatrices and only a few had six marks. Twelve children were vaccinated before me and many more might have been done had the Vaccinator had sufficient lymph. On the evening of the 7th I left Utticottah and went on to Sathavadu. There were three villages on the way, but no vaccination had been done in them for a year.

At Sathavadu I saw fifteen cases which had been done by Vaccinator A. Ruthrappah Reddi. The cicatrices in these cases were not well marked, and in the "register" the number of successful vesicles was entered incorrectly. The Vaccinator was then under suspension for falsifying accounts. There were numerous children going about unvaccinated. As the Vaccinator's lymph was exhausted no cases could be vaccinated.

Combacum, which is about twelve miles from Sathavadu, had not been visited by the Deputy Inspector for seven years. On the 8th I left Sathavadu and arrived at Arni. At Arni vaccination was backward, and I saw some old cases but no lymph subjects. The people did not appear to have any objections to vaccination, and twelve children were vaccinated before me by Vaccinator G. Veeraragavaloo Reddy of the Ponneri Division, who had a few lymph tubes.

On the 9th I left Arni and went on to Vengol. No vaccination had been done there since 1877, but many of the children who had been in relief-camps had well marked cicatrices. There were however a great many young children with no marks of vaccination.

On the 10th I left Vengol and arrived at Tinnanur; here I saw some old cases but no lymph subjects, and there were many children going about unprotected. On the 11th I left Tinnanur and went on to Poonamallee. In Old Poonamallee I saw some old cases, but only a few of them had six well marked cicatrices. There were no lymph subjects; eight cases were vaccinated before me from tube lymph, and more might have been done had the lymph been sufficient. In the Island Parcherry (where the servants belonging to the barracks and hospital live) vaccination seems to be well carried on, as most of the children running about had six well marked cicatrices.

At Karaganchandy (a quarter of a mile from Poonamallee) I saw eight cases which had been done a month before, and two five days before, by Second-class Vaccinator A. Ragavooloo Reddy of the Saidapet Taluk. The lymph in use did not appear good, because in the two fifth-day cases the vesicles were very small and not six in number. In the eight cases done a month before only two had six marks.

On the 12th I left Poonamallee and arrived at Madras.

Digitized by Google

GANJAM DISTRICT—CHETTERPORE CIRCLE.

Establishment.

1 First-class Deputy Inspector—Mahomed Alludin.
12 do. Vaccinators.
10 Second-class do.
3 paid Probationers.
1 Peon.
Area, 3,088 square miles.
Population, 784,856.

The number vaccinated during the year under report was 8,510, with a percentage of 93·04 of success. On comparison with the total of the preceding year there is a slight increase of 209 operations. The Deputy Inspector of this circle was transferred to Ellore and the Ellore man sent to the Chetterpore Circle. The present man assumed charge of this circle at the close of the year, and the report furnished by him regarding the working of the vaccine staff is meagre. Small-pox was prevalent in the circle during the year, and vaccination was actively carried on to check the progress of the disease; owing to the prevalence of fever, several Vaccinators who were attacked with it were unable to carry on their work, and the consequence was that the working lymph was often lost. The Deputy Inspector states that Honorary Surgeon Hargraves, Mr. Apothecary Collins, and the Rajah of Mandasa take great interest in vaccination. The character of the staff, with a few exceptions, is reported good. No batta was given to mothers for supplying vaccine lymph. Twelve capillary tubes and four scabs were supplied to medical and other officers during the year. The number of children vaccinated under one year was 115, which is very low considering the staff of Vaccinators at work. The average cost of each successful case was 7 annas and 3 pies.

On the 7th July I left Madras and arrived at Gopalpur on the 11th. In Gopalpur vaccination is very backward, and the people have great objections to it.

The Port Surgeon, Mr. Apothecary Collins, vaccinates about twenty a year, and he complained that he could not get lymph. I warned the Vaccinator to be more energetic in future, and to supply Mr. Collins with fresh lymph whenever he required it.

On the 14th July I left for Chetterpore. In Chetterpore vaccination is also backward, and I saw 24 cases, but in all the cicatrices were not well marked. The Vaccinator does not appear to have much influence with the people, who have great objections to vaccination. A great deal more might be done towards pushing on vaccination if the Vaccinator was a high-caste native of Ganjam. The Civil Surgeon, Mr. Hargraves, takes great interest in vaccination, and affords the Vaccinator every assistance. I visited also a village two miles from Chetterpore called Tarkapully, and saw 22 cases which had been done in March. No vaccination had been done in this village since March. The Vaccinator, viz., T. Rungiah, does not appear to work hard. His books and instruments were in good order, but he had no service book. The Deputy Inspector was accordingly ordered to get him one immediately.

On the morning of the 18th I left for Ganjam, returning to Chetterpore in the evening. Here the Vaccinator, viz., Loconathrooloo, showed me three recent cases; and at a village called Chudapillay, one mile from Ganjam, I saw sixteen cases which had been done in June. These cases had well marked cicatrices. The Vaccinator's book and instruments were well kept. On my way back to Chetterpore I saw fifteen cases at a village called Hoomri. The cases had been vaccinated in March and had well marked cicatrices.

While at Chetterpore I examined the Deputy Inspector's records, books, &c., and found all written up to date and neatly kept.

On the 20th July I left for Berhampore, and on the way saw ten cases of vaccination at a village called Jaganathpore. These cases had only been done a month before, but at another village I saw 34 recent cases and the lymph appeared good.

On the 21st July I left Berhampore for Aska, arriving at Aska on the 22nd. There were no recent vaccinations to be seen in Aska, but in a village one mile off I saw eighteen cases, and in these the vesicles were well raised. All the people in the

Digitized by Google

sugar manufactory have been vaccinated, and most of the children in the town had well marked vaccination cicatrices. The Vaccinator, viz. Jaggayya, seems to work well, and his books and instruments were kept in good order.

On the 23rd I left Aska and arrived at Russelkonda on the 24th. At Russelkonda I saw nineteen vaccination cases which had been done twelve days before by Vaccinator Balaramasawmy, and while there I vaccinated three cases. The lymph appeared good, but the Vaccinator is lazy, and the Deputy Inspector complains of his being most disobedient. I examined this Vaccinator's books and found they were not written up to date.

The prisoners in the Russelkonda Jail were all vaccinated.

On the 25th I left Russelkonda and arrived at Berhampore on the 27th. In the Berhampore Jail all the prisoners, except those who had been inoculated, were vaccinated.

The Municipal Vaccinator of Berhampore works under the Civil Surgeon's orders, and every week he takes cases to the hospital for inspection. I saw two cases he had done eight days before, and the vesicles were good. Only twenty cases had been vaccinated from 12th to 27th July, and this is a very small number, for, when walking about the town, I saw many children who had no vaccination marks. At the Tahsildar's cutcherry people were then being fed twice a day, and the Vaccinator was ordered to go there and vaccinate the unprotected children. Each successful case gets 1 anna from the Municipality.

On the 30th I left Berhampore and arrived at Ichapore. On the way I saw 21 cases at a village called Gersolah. These had been done in May by First-class Vaccinator Venkatasawmy of the Chikati Taluk. All these cases had well marked vaccination cicatrices.

At Ichapore I saw sixteen cases done seven days before by Vaccinator Hurryalsawmy, and they all had good vesicles and the lymph appeared good. Some old cases I also saw. This Vaccinator is inclined to be lazy, and was fined in May for short work. I examined his books and instruments, which were well kept, but his service book was not entered up to date.

On the 31st I left Ichapore and went on to Cunchilly. Here no vaccination had been done for a year, and the Vaccinatrix in whose division Cunchilly is, states that the people all work some miles off, and so she was unable to vaccinate any of their children. This, however, is no excuse.

On the 1st August I left Cunchilly and proceeded to Himpore. On the road I inspected vaccination in two villages, viz., Collam and Hookampettah, and saw ten cases that had been done in September 1877 and April 1878 by Vaccinatrix G. C. Narainamah. The cicatrices were not well marked, and few of them had six. On the morning of the 2nd I went round Hurripore and saw fourteen cases of vaccination which had been done by Second-class Vaccinator Krishnamauhantee of the Mandasa Taluk. These cases had been done twelve days before and were very successful. I then examined the register and instruments belonging to Vaccinatrix G. C. Narainamah. The register was carelessly kept, and she only vaccinates twelve cases or so a month. Usually five of the twelve are unsuccessful, and the cicatrices of the successful ones are not well marked. She had no lymph in either tubes, glasses or bottles, but had a few scabs which were utterly unfit for use. This woman was appointed four years ago with a view to her carrying on vaccination in the Zemindar's harems; but for two years no cases had been done in any of the harems. This Vaccinatrix is of very little use, and she only goes about two miles per diem. The Deputy Inspector has recommended her dismissal, and the President of the Local Fund Board has directed the Deputy Inspector to nominate another Vaccinatrix, but he has been unable to get one. I think it would be better to appoint a Vaccinator in this woman's place.

In the afternoon I went on to Mandasa, and saw eight cases which had been done about ten days before by Second-class Vaccinator Krishnamauhantee. These cases were very successful. I examined this Vaccinator's register, which was neatly kept, and his instruments were in good order. He had plenty of lymph in tubes. This Vaccinator does not appear to go out in the taluks much, and in July he only vaccinated 25 cases. I visited the Rajah of Mandasa, who takes great interest in pushing on vaccination.

Digitized by Google

CHICACOLE CIRCLE.

Establishment.

1 First-class Deputy Inspector—P. Vurtharajuloo.
2 do. Vaccinators.
8 Second-class do.
Area, 1,186 square miles.
Population, 566,863.

The Deputy Inspector reports 3,699 cases during the year under review with a percentage of 83 of success: the results in 119 operations were not ascertained. On comparing this with the work of the preceding year there is a decrease of 273 cases, which the Deputy Inspector attributes partly to the prevalence of cholera and partly to the absence of Vaccinators on leave and on the sick list for some months. The report furnished by the present Deputy Inspector regarding the vaccine establishment, &c., is meagre, as he only assumed charge of the circle after the close of the year. The former Deputy Inspector, who was very idle, was transferred from Chicacole to the Ongole Circle. Various obstacles to pushing on vaccination in this circle still exist, and the Deputy Inspector suggests compulsory measures. Small-pox was prevalent during the year, and steps were taken to check the progress of the disease by deputing Vaccinators to those parts where the disease had broken out. 139 children under one year of age were vaccinated, comprising 67 males and 72 females; this is very low for a staff of ten Vaccinators, and averages about fourteen in a year to a single Vaccinator. The Deputy Inspector has been allowed travelling batta at the rate of Rupees 10 per mensem as per G.O., No. 1,574, dated 4th September 1878. He complains of the want of a peon to do the menial work of his office. The average cost of each successful operation was Annas 12.

On the 3rd August I left Mandasa and went on to Kasibugga, and here was met by the Deputy Inspector of this circle. At Pallasa, about three-quarters of a mile distant, no vaccination has been carried on for two years, although there is a population of 1,250. The Vaccinator of this taluk was ill and under treatment at Chicacole. It appears that the Deputy Inspector had not once visited Pallasa for fully a year, and never tried to get any children vaccinated. The Cazee with whom I spoke said there were many children who might have been vaccinated. In the afternoon I left Kasibugga and proceeded to Gopalpur, and here I found that no vaccination had been done for some time.

On the 4th I left Gopalpur and proceeded to Narsannapet. The Vaccinator of this taluk was sick. On the morning of the 5th I went round Narsannapet and saw eleven old cases of vaccination. There were many children running about the town unvaccinated. I left Narsannapet in the afternoon and went on to Chicacole. At Chicacole I remained till the morning of the 10th. Vaccination in Chicacole is backward, although the children vaccinated are allowed half an anna every day for seven days. I saw 27 cases that had been done a few months before by the Municipal Vaccinator, but very few of them had six cicatrices, and most of these cicatrices were not well marked. I also saw two cases done eight days before: one had two vesicles and the other one. The register and instruments belonging to the Municipal Vaccinator were examined and found in good order. I examined also the Deputy Inspector's records, which were correctly kept, but the service books were not up to date. There were a number of famine people fed daily at the market, but no vaccination had been done amongst them. One morning I had eighteen of these children vaccinated, and they were very willing to submit to the operation for the sake of the batta. The Deputy Inspector is a very lazy man, and is always in Chicacole.

The Municipal Vaccinator is under the Deputy Inspector, but he was to be placed under the new Civil Surgeon when he arrived. I saw the Vaccinator of the Kasibugga Taluk, who was suffering from fever, and also the Vaccinator from Naupada, who was quite fit to return to duty, and I ordered him to do so.

Digitized by Google

HILL TRACTS—GANJAM.

ESTABLISHMENT.

1 First-class Deputy Inspector—M. Narrainah.
6 Second-class Vaccinators.
Area, unknown.
Population, 131,112.

The Deputy Inspector reports that during the year under review 2,949 operations were performed, with a success of 95·35 per cent., and the results in 81 were unknown. The total, comprising 1,567 males and 1,382 females, shows an increase of 823 cases when compared with the total of persons vaccinated in the preceding year. The vaccine staff chiefly worked in Gumsur, Chinna-Kimedi and Baligudah. In the Maliahs vaccination is backward, as most of the people totally refuse to be operated on during the five or six months they are engaged in cultivation and in reaping the harvest. The Maliah people also greatly object to vaccination, and in some places will only submit to the operation when small-pox has broken out. Great difficulties are met with in extracting lymph from vaccinated subjects, as the people think that some harm will happen to their children if this is done. The Deputy Inspector suggests that if greater assistance was given by the local authorities vaccination would be more actively carried on. Owing to the prevalence of small-pox in the Baligudah Taluk a large number of cases, viz., 1,184, were vaccinated. Second-class Vaccinator L. Luksingh performed the largest number of operations, viz., 598. The conduct of the Vaccinators is reported good. 212 infants under one year of age were vaccinated; 205 of these cases were successful. Small-pox prevailed throughout the Maliahs, and the Vaccinators were immediately sent out with lymph to vaccinate the unprotected.

The Deputy Inspector complains that no peon is allowed him. The average cost of each successful case was Rupees 1-4-9.

While at Russelkonda I examined the records, books, &c., of the Deputy Inspector of the Maliahs, who was staying there then, but as small-pox was prevailing in the Maliahs I ordered him out. The records, &c., were well kept up to date. Vaccinator Luksingh of the Maliahs was also in Russelkonda, and I saw nine cases he had done ten days before. These were very successful. I examined this Vaccinator's books and instruments and found them kept well.

This Vaccinator, who is a Native Christian, does not appear to have much influence with the Maliahs.

GODAVARI DISTRICT—COCANADA CIRCLE.

ESTABLISHMENT.

1 First-class Deputy Inspector—K. Parthasaradhi Naidoo.
6 do. Vaccinators.
8 Second-class do.
3 paid Probationers.
1 Peon.
2 temporary Vaccinators for three months.
2 private Estate Vaccinators.
Area, 3,507½ square miles.
Population, 834,948.

The Deputy Inspector reports 20,077 operations during the year under review, comprising 12,067 males and 8,010 females. Of these numbers 17,066 were performed by the Local Fund staff, 1,031 by the temporary, and 1,980 by two private Vaccinators. On comparison with the work of the preceding year, the total given above shows an increase of 7,416 cases, attributed chiefly to the outbreak of small-pox and also to the stimulus given to the Vaccinators by the payment of 2 annas for each successful operation above 100 in a month. In reviewing the work of the individual Vaccinators, Second-class Vaccinator R. Baupaniah has obtained

Digitized by Google

the largest number of cases, viz., 3,037. Small-pox having made its appearance all over the circle two temporary Vaccinators were entertained for three months to assist the permanent staff, as it was found the staff was not sufficient to vaccinate the large numbers of people who willingly came forward to be vaccinated. 1,031 cases were vaccinated by these extra hands, out of which 994 were successful. In the Nagarum Division of the Narsapur Taluk the disease was very severe, and the temporary Vaccinators were sent there. The Deputy Inspector states that very little objection to vaccination during the year has been noticed. Owing to the great prevalence of small-pox the people were very willing to submit to vaccination. The Deputy Inspector further adds that compulsory vaccination at this time would not be thought severe. The working lymph in use was good and effective. The total of infants operated on under one year of age was 893, comprising 464 males and 429 females; of these 866 were successful. The Deputy Inspector states that he saw during the year twenty-five people who were attacked with small-pox after vaccination; nine of these were in the Rajahmundry town, thirteen in the Nagarum Division, and three in Bhimavaram Village. None of these cases were fatal. On inquiry it was found that all of these cases had only been vaccinated from four to six days before they were attacked with small-pox. 125 subjects who bore distinct marks of previous vaccination were re-vaccinated from arm lymph, but in none of these cases were the vesicles well formed. No changes occurred among the staff, except a Second-class Vaccinator who was on the sick list throughout the year, and a probationer was appointed to act for him. The conduct of the Vaccinators is reported satisfactory. The cost of each successful operation was Annas 5.

On the afternoon of the 27th August I left Nakapulli and went on to Tuni, where I was met by the Deputy Inspector of this circle. Vaccination at Tuni is very backward, notwithstanding that the Sub-Magistrate does all in his power to push it on. Second-class Vaccinator C. Narrainsawmy had only had charge of the Tuni Division since June, and I saw six cases which he had done, and which were all successful. He vaccinated six cases before me. There had been small-pox in other parts of the division, and the Vaccinator had been working there. This Vaccinator was in the Nagarum Division before, and he seems to have done good work there. The register and instruments of this Vaccinator were in good order.

On the 28th I went on to Annavaram from Tuni. At Annavaram no vaccination had been done this year as the Vaccinator had been working in another part of the taluk where small-pox was prevailing. Last year about thirty cases were done in this small village. On the morning of the 29th I left Annavarum and went on to Pittapur. Here two Vaccinators are employed by the Rajah, but the Local Fund Board gives Rupees 200 a year towards their pay. The Vaccinator, viz., First-class Zemindary Vaccinator I. Papa Row, is slow, and does not give great satisfaction. His register was written up to date, but his instruments, &c., were dirty. I saw 96 cases he had done in June, July and August. The cicatrices were well marked, but placed much too low down on the arms. Small-pox was very prevalent here in March, April and May, and numbers of people about the town were marked with it. There were many children I saw going about the town unvaccinated. On the afternoon of the 29th I went on to Samulcottah from Pittapur. On the morning of the 30th I examined the work at Samulcottah and Bhimavaram and saw 98 cases which had been done in May, June and July by the First-class Vaccinator Soobramanium of the Cocanada Division.

Small-pox was prevalent in Samulcottah from January to June. Vaccinator Soobramanium's register and instruments were in good order.

I also examined the register and instruments of First-class Vaccinator P. Ramachendra Row of the Peddapur Division. His instruments were in a dirty state, and his service book was not entered up to date. This Vaccinator is old and does not look active. Last month he was reported by the Deputy Inspector for short work. On the afternoon of the 30th I left Samulcottah and went on to Cocanada, where I remained till 5th September, and inspected the work of the Municipal Vaccinators. I saw altogether 468 cases, and out of these fifteen were lymph subjects. In the old cases the cicatrices were well marked and generally six in number, and in the recent cases the vesicles were well raised. Formerly there was only one Municipal Vaccinator, but when small-pox broke out in the beginning of the year

Digitized by Google

an extra man was taken on temporarily, and a few months ago his appointment was made a permanent one. These two Vaccinators work together in the town and were doing about 100 cases per month. Ever since the outbreak of small-pox the people have been very willing to submit to the operation.

I visited the schools and found that most of the children had been vaccinated. The registers and instruments of these Municipal Vaccinators were kept in good order.

I also examined the register and instruments of First-class Zemindari Vaccinator M. Soobaramaniem of the Cocanada Division and found them in good order, but the Deputy Inspector had not countersigned the register.

On the 5th September I left Cocanada and arrived at Dowlaishvaram on the morning of the 6th. At a village two miles from Cocanada I saw sixteen cases which had been done by First-class Zemindari Vaccinator M. Soobaramaniem of the Cocanada Taluk in February 1878. The cicatrices in these cases were all well marked. At another village called Thoosipoody I saw four cases which had been done in June, and they all had well-marked cicatrices. At Vanaghiry, which is one mile from Dowlaishvaram, I saw 62 cases which had been done in May and June by First-class Vaccinator S. Jaganath Row of the Rajahmundry Taluk. These cases had all well-marked cicatrices. At Dowlaishvaram I saw 81 cases (done since April), and all had well-marked cicatrices. When small-pox appeared, the people in Dowlaishvaram willingly submitted to vaccination.

On the evening of the 6th I left Dowlaishvaram and arrived at Rajahmundry, where I remained till the morning of the 11th. At Rajahmundry I inspected the Second-class Municipal Vaccinator's work and saw 143 cases which had been done by him; of these 143 cases, eight were lymph subjects. In this man's register the number of vesicles were not marked correctly. His instruments were in good order.

In February, March and April when small-pox was prevalent, the Deputy Inspector asked the Vice-President that two Vaccinators and one probationer of the Rajahmundry Taluk might be allowed to vaccinate cases in Rajahmundry. I saw 96 cases that had been done by them, and all had well-marked cicatrices. Their registers and instruments were also in good order. All the prisoners in both the District and Central Jails were vaccinated. While at Rajahmundry I examined the records, &c., belonging to the Deputy Inspector and found them written up to date and kept neatly. I went to a village called Kolanoor, five miles from Rajahmundry, and saw 28 cases which had been done by First-class Vaccinator S. Jaganath Row of the Rajahmundry Taluk. These cases had well-marked cicatrices.

ELLORE CIRCLE.

Establishment.

1 First-class Deputy Inspector—M. Nursingbhon.
5 do. Vaccinators.
5 Second-class do.
2 paid Probationers.
1 Peon.
5 temporary Vaccinators for six months.
Area, 3,211 square miles.
Population, 694,927.

The comparative numbers vaccinated during 1877-78 and 1878 are as follow:—

	Total.	Successful.
1877-78	5,840	5,001
1878	8,010	7,135

The total operated on during the year under review shows an increase of 2,170 cases which was mainly due to a severe outbreak of small-pox in the circle, five extra hands being employed for six months to check the progress of the disease. The temporary Vaccinators show a total of 974 operations, comprising 569 males

Digitized by Google

and 405 females. The percentage of success for the circle was 89·076. The Deputy Inspector Mahomed Alludin of this circle was transferred to the Chetterpore Circle of the Ganjam District at the close of the year. Obstructions to vaccination did not exist during the year under notice. On comparing the individual Vaccinator's work, First-class Vaccinator C. Nagannah, No. 672, stands first among the staff and shows a total of 1,635 cases. The number of infants vaccinated under one year of age was 590, of which 326 were males and 264 females. The conduct of the staff, with a few exceptions is reported good. 12 vaccination certificates were granted to candidates appearing for examinations. Rupees 22-8-0 were spent as batta to mothers for supplying fresh lymph for transfer. The average cost of each successful case was 4 annas and 4 pies.

On the morning of the 11th September I left Rajahmundry and arrived at Ellore, where I remained till the 17th. At a village called Nundamara between Rajahmundry and Ellore I saw 24 cases which had been done in June by First-class Vaccinator N. Subbaroyadu of the Ellore Taluk. These cases had well-marked cicatrices. At Ellore I inspected the Municipal Vaccinator's work and saw 87 cases which he had done this year; out of these 87 there were four lymph subjects with well raised vesicles. The 83 old cases had not well-marked cicatrices, and few of them had six. In this man's register the "age" and "No. of vesicles" were not entered correctly. Vaccination appears very backward in Ellore, as there were many children going about unprotected. I visited two schools, one with fifty pupils; and out of those only three had vaccination marks: the other school had 112 pupils, and only six of them had been vaccinated.

The Hospital Assistant in charge of the dispensary supervises the work of the Municipal Vaccinator. At a village called Pinkadimi, five miles from Ellore, I saw eleven cases which had been done by First-class Vaccinator S. Subbaroyadu of the Ellore Taluk; these all had well-marked cicatrices. I examined the registers and instruments of the First-class Vaccinators of the Ellore Taluk and found them in good order.

At Polagudum, which is only three miles from Ellore, I saw eleven cases which had been done by First-class Vaccinator M. Subbaroyadu. These cases had well-marked cicatrices, but the numbers were not entered correctly in the register. At Tungolunundy, which is now a part of Ellore, I saw fifteen cases which had been done ten days before by First-class Vaccinator S. Subbaroyadu, and they were all very successful. While at Ellore I examined the records, &c., belonging to the Deputy Inspector; they were neatly kept, but the service books had not been entered up to date. One service book which belonged to a Vaccinator who had been dismissed was still in the Deputy Inspector's possession.

On the 17th I left Ellore and arrived at Narsapur on the 18th. At Palakollu, which is six miles from Narsapur, I saw twelve cases which had been done by First-class Vaccinator P. Gopaludu of the Narsapur Taluk; these cases had well-marked cicatrices. There were numerous children about the town who had no vaccination marks. At Narsapur I saw fifty cases done by First-class Vaccinator P. Gopaludu, and all had six well-marked cicatrices.

The Deputy Inspector of this Circle is lazy. He was at Narsapur in July for one week; and although 164 cases had been vaccinated since his last inspection, he only saw 41. Numerous cases I saw he had not inspected.

KISTNA DISTRICT—MASULIPATAM CIRCLE.

Establishment.

1 First-class Deputy Inspector—D. Baupaniah.
7 do. Vaccinators.
7 Second-class do.
2 paid Probationers.
7 temporary Vaccinators for 3 months.
Area, 3,652 square miles.
Population, 739,047.

Digitized by Google

The comparative numbers vaccinated during 1877-78 and 1878 are as follow :—

1877-78	13,958
1878	14,671

The total of persons operated on during the year under report shows an increase of 713 cases over the preceding year. Small-pox was prevalent throughout the circle, and application for the services of Vaccinators were received from Tahsildars and Deputy Tahsildars. The present staff being found insufficient to meet the various demands, the Local Fund Board sanctioned the employment of seven extra hands in March and April 1878, for three months, to check the disease in its progress. The Deputy Inspector states that the whole staff worked well during the year, with the exception of the Bezwada Taluk Vaccinators, who often reported to him that no work could be done, as the people refused to allow their children to be vaccinated, and that they received no assistance from the taluk officials. The Deputy Inspector suggests for the improvement of vaccination in the circle that it be made compulsory. The Head Assistant Collector, Mr. Sewell, has taken great interest in explaining to the people the benefits of vaccination. One Second-class Vaccinator died, and another was dismissed for neglect and carelessness. Among the staff First-class Vaccinator K. Nursimloo, No. 32, has vaccinated the largest number of cases, viz., 1,981. 59 vaccination certificates were granted to candidates appearing for Government examinations. Batta to the extent of Rupees 38-5-0 was given to mothers for furnishing vaccine lymph during the year. The percentage of success was 4·13, and the average cost of each successful operation was 4 annas and 11 pies.

On the 19th September I left Narsapur and went to Chengollapaliam, where I saw twelve cases which had been done by First-class Vaccinatrix Elizabeth of the Masulipatam Taluk. These cases had all six well-marked cicatrices.

On the 20th I left Chengollapaliam and arrived at Tallapaliam. At Peddagollapaliam, which is on the road between Chengollapaliam and Tallapaliam, I saw thirty cases done by the same Vaccinatrix, and all the cicatrices were well marked. At Tallapaliam I saw six cases done in June and July by Vaccinatrix Elizabeth. While I was there I had six cases vaccinated. In May small-pox had been prevalent in this part, and the people were very willing then to submit to the operation.

On the 21st I left Tallapaliam and arrived at Masulipatam, where I remained till the 27th. Inspected the work of the First-class Vaccinator of the Masulipatam Municipality, and saw 238 cases which had been done since April. These cases had well-marked cicatrices. I also saw fifteen lymph subjects, all having six well-raised vesicles. At the Fort I saw 22 cases, and at Gilcalandimy (one mile from the Fort) 31 cases: all had well-marked cicatrices. This Vaccinator's register and instruments were in good order. His pay ought to be raised to 18 rupees, as he seems to do good work. I examined the records, &c., belonging to the Deputy Inspector and found all neatly kept, but the service books were not written up.

On the 27th I left Masulipatam and arrived on the 28th at Bezwada, where I remained till the 3rd October. At Rangavally, which is between Bezwada and Masulipatam, I saw eighteen cases which had been done by First-class Vaccinator M. Ramasawmy of the Nuzvid Division. All had six well-marked cicatrices. Vaccination in Bezwada is very backward, and the people object greatly to it. If half an anna were given to each successful case more vaccination might be done, as the people complained to me that at Bunder the children received batta, whilst at Bezwada nothing was given. I saw 69 cases which had been vaccinated by the Vaccinator of the Bezwada Taluk, and the cicatrices were well marked and mostly six in number. One girls' school I visited; there were 48 pupils, and only two had marks of vaccination.

At a village called Potamata, four miles from Bezwada, I saw 27 children who had been vaccinated by First-class Vaccinator Budrachellum and Second-class Vaccinator T. Ruthnum of the Bezwada Taluk. The cicatrices in these cases were not well marked, and very few had six. In this village the people were very unwilling to have their children vaccinated. One child was vaccinated in my presence.

Digitized by Google

At a village called Roynapada, five miles from Bezwada, I saw nineteen children who had been vaccinated by the two Vaccinators of the Bezwada Taluk; only two of these cases had six marks, the others having only one or two. These cases were not entered correctly in the Vaccinator's registers; some were entered as successful, when quite unsuccessful, and others as having six vaccination marks when there was only one. Whilst at Bezwada I examined the registers and instruments of the two Vaccinators belonging to the Bezwada Taluk and found them in good order. Since July these Vaccinators have done very little work, the average being about 20 cases a month each.

GUNTOOR CIRCLE.

ESTABLISHMENT.

1 First-class Deputy Inspector—C. Narasimooloo.
3 do. Vaccinators.
9 Second-class do.
1 Peon.
Area, 4,131 square miles.
Population, 660,106.

The Deputy Inspector reports 9,924 operations with a percentage of 91·28 of success. The results in 511 cases were not ascertained; the total shows a slight decrease of 315 cases below that of the preceding year, and the cause is attributed to the prevalence of cholera and famine. On comparing the Vaccinator's work, Second-class Vaccinator Makum Ram, No. 884, shows the largest number of operations during the year, viz., 1,492. Obstructions to the spread of vaccination continue in the circle, and the people, both educated and uneducated, are unwilling to allow their children to be vaccinated owing to their superstitious belief in the small-pox goddess; some people utterly refuse to be vaccinated unless their village heads first have their children done, and thus set an example to them. In some villages the Curnums are ready to give kyphets to Vaccinators, saying that the people are reluctant to be vaccinated, and do not assist the Vaccinators in their work. The assistance of village heads is greatly required in pushing on vaccination, and without such help the people will not be convinced of the advantages resulting from vaccination. Small-pox was prevalent in the district from January to June, and means were taken to check the progress of the disease by vaccinating the unprotected. The Deputy Inspector suggests that no one should be admitted into either a Local Fund or Government school without first having been vaccinated, and that village officials, &c., should be ordered to have their children done. 149 infants under one year of age were vaccinated, comprising 87 males and 62 females. 30 vaccination certificates were granted to candidates appearing for examinations. No batta was paid to mothers for supplying lymph. The Deputy Inspector of this Circle was transferred to the Vizagapatam Circle at the end of the year, and the present man was removed from Vizagapatam to Guntoor. The cost of each successful operation was 5 annas and 10 pies. The character of the staff, with a few exceptions, is reported good.

On the 3rd October I left Bezwada and went to Guntoor. At Mangalagiri, which is seven miles from Bezwada, the Deputy Inspector of the Guntoor Circle showed me eleven children who had been vaccinated by Second-class Vaccinator T. Nathamooney of the Guntoor Taluk; four of the eleven cases were lymph subjects, and in those the vesicles were well raised. At Kaja, ten miles from Guntoor, I saw six children who had been vaccinated by the Second-class Vaccinator of the Guntoor Taluk, and in these cases the cicatrices were well marked and six in number.

At Guntoor I remained till the 9th October. Vaccination in Guntoor is backward, and the Municipal Vaccinator might do more work as there were many children going about unprotected. I saw 81 children who had been done by the Municipal Vaccinator some months before; the cicatrices in these cases were not well marked, and few had six. In the jail I saw three lymph subjects, and in these

Digitized by Google

cases the vesicles were well raised. I examined the Municipal Vaccinator's register and instruments. The register was carelessly kept; the number of "vesicles" were entered incorrectly in many cases. He had no tube lymph, only a few scabs, which appeared useless. Each successful case gets 1 anna. Small-pox was prevalent in Guntoor till August, and there were many people going about marked with small-pox.

At a village called Konitapadi, two miles from Guntoor, 25 children had been vaccinated by Second-class Vaccinator T. Nathamooney and Probationary Vaccinator K. Seetharamasawmy of the Guntoor Taluk in August. The cicatrices in these cases were well marked.

At another village called Ingenampadi, I saw 107 children who had been vaccinated in June by Second-class Vaccinators T. Nathamooney and T. Raghaviah. The cicatrices were well marked and six in number.

At a small village called Atookoor I saw 14 children who had been vaccinated in June, and these cases had well-marked cicatrices. I examined the registers and instruments belonging to the Vaccinators of the Guntoor Taluk and found them well kept. I also examined the records, &c., belonging to the Deputy Inspector, and found them neatly kept and written up to date.

KURNOOL DISTRICT.

Establishment.

1 First-class Deputy Inspector—V. Durmalinga Moodelly.
4 do. Vaccinators.
7 Second-class do.
2 paid Probationers.
1 Peon.
Area, 7,676½ square miles.
Population, 926,766.

In this district 3,335 operations are reported against 4,347 in the preceding year, with a percentage of 86·18 of success. On comparing the numbers with those of the preceding year, it will be found there is a decrease of 1,012 cases, and the Deputy Inspector attributes this to first, the establishment of famine-relief camps, &c., in the preceding year, these having given Vaccinators great opportunities of vaccinating every unprotected child: this year the camps were abolished; secondly, two Vaccinators of the first class were suspended, one for three months, another for one month, for short work performed by them: a second-class man was suspended for a month and a half for misconduct. The vacancies caused by these men were not filled up for some time, as there were no competent hands to take their places. The figures given below show the work performed during the past five years in this district:—

	No.	Success.
1874-75	3,114	89·18
1875-76	1,919	88·04
1876-77	3,362	91·91
1877-78	4,347	86·
1878	3,335	86·18

It will be seen from the above how backward vaccination is in this district, an average of only 3,215 operations a year, or 247 annually to a Vaccinator, or 20 a-month. When the work of other districts is compared, Kurnool stands at the bottom of the Presidency as regards vaccination. First-class Vaccinator Soobroya Moodelly obtained the largest number of cases, viz., 549. Great obstructions to the spread of vaccination continue. The prevalence of malarious fever and other diseases retarded the progress of vaccination among the people. The heads of villages themselves strongly oppose vaccination, and much more the villagers who are under their orders. The Deputy Inspector suggests that the village authorities be required to furnish Vaccinators with a list of the unvaccinated, or those who have no marks of small-pox, whenever they visit their villages. If this system was carried out he thinks that in every village there would be a great increase in the

Digitized by Google

number vaccinated. There was no outbreak of small-pox in the district, but cholera, fever and other diseases were prevalent.

The number of children vaccinated under one year of age was 118, comprising 66 males and 52 females, and these were obtained mainly from relief-camps, &c. The cost of each successful case this year was Rupees 0-14-9 against Rupees 0-12-5 of the preceding year.

The attention of the Local Fund Board has been directed to the condition of vaccination in this district.

MADURA DISTRICT—MADURA CIRCLE.

Establishment.

1 First-class Deputy Inspector—G. Rungasawmy Naidoo.
12 do. Vaccinators.
20 Second-class do.
2 paid Probationers.
1 Peon.
Area, 4,886½ square miles.
Population, 1,246,798.

The Deputy Inspector reports 26,342 operations against 32,704 in the preceding year, showing a decrease of 6,362 cases. This he accounts for by the abolition of famine-relief camps, &c. during the year under report and to the prevalence of fever in some parts of the circle. Of the total vaccinated 24,540 were successful, 587 unsuccessful, and 1,291 unknown. The average number performed by each Vaccinator is 777. The highest number, viz., 1,229 cases, was performed by First-class Vaccinator Alaghirisawamy, No. 946. Vaccination continues backward in some parts of the circle, and it is difficult to get the children of the Lubbays, Weavers, &c., vaccinated, as these classes strongly object to vaccination. The Vaccinators complain that there is much difficulty in getting lymph from the arms of children operated on, for the parents refuse to show them when they call to ascertain the results, and say that the children are absent from their houses and taken to the adjacent villages, &c. Small-pox prevailed to some extent during the year, and the disease is believed to have been propagated by a few inoculators who live in the Shivaganga and Ramnad Zemindaries. The Deputy Inspector suggests that vaccination be rendered compulsory. The working lymph in use was very good throughout the year. The number of infants vaccinated under one year of age was 3,885. 20 vaccination certificates were granted to candidates appearing for Government examinations. The cost of each successful operation was 3 annas and 9 pies.

DINDIGUL CIRCLE.

Establishment.

1 Second-class Deputy Inspector—Moortooza Hoossain.
6 First-class Vaccinators.
9 Second-class do.
3 paid Probationers.
Area, 3,903¼ square miles.
Population, 954,965.

In this circle the total number vaccinated was 11,255, comprising 5,931 males and 5,324 females. The total shows a decrease of 15,042 cases against 26,297 operated on during the past year. The cause of decrease is accounted for, first, by the people refusing to submit their children for vaccination as fever was very prevalent amongst them; secondly, owing to the continued existence of famine, which induced the inhabitants of certain villages to quit their homes for remote places where they could earn a livelihood; and thirdly, to the superstitious objections which exist among the Hindus, Lubbays, Coppliers and Thotties, &c. to

Digitized by Google

vaccination, which they regard as contrary to the laws of their respective religions. The Deputy Inspector urges the necessity of all the village authorities being required to assist the Vaccinators in the performance of their duties, and he thinks that should this help be given most of the objections to vaccination would be removed. Second-class Vaccinator Vadamalay Pillay vaccinated 956 cases, being the largest number amongst the whole staff. Small-pox was not reported to be prevalent in the circle during the year. The general conduct of the Vaccinators has been good, and the vaccine lymph in use excellent. The want of a peon is much felt by the Deputy Inspector. The average cost of each successful case has been Annas 4 and Pies 9. The Hospital Assistant stationed at Kodaikanal, Pulney Hills, shows a total of 89 cases, with 74 successful and 15 unsuccessful results. The cost of each successful operation is Annas 9 and Pies 4.

MALABAR DISTRICT.

Establishment.

1 First-class Deputy Inspector—Ponnen Connen.
4 do. Vaccinators.
7 Second-class do.
5 temporary do. for three months.
1 private Vaccinator.
Area, 6,201½ square miles.
Population, 2,138,933.

The total number of operations performed by the vaccinating staff was 14,131 against 12,546 in the preceding year. Of this number 12,013 were vaccinated by the permanent, 2,086 by the temporary, and 32 by the private Vaccinators. The total shows an increase of 1,585 cases, with an average percentage of 87·68 of success. First-class Vaccinator P. Chandoo, No. 107, vaccinated 1,736, being the largest number when compared with his fellow-vaccinators. The Deputy Inspector states that objections to vaccination still exist in some of the remote villages (amshoms), and the people are unwilling to have their children vaccinated simply because vaccination would be attended with fever for some days, and so they would be unable to work during these days. Thus they demand from the Vaccinators batta, as such is conceded to the people in some Municipalities of the district. The Deputy Inspector recommends that vaccination be made compulsory. Small-pox made its appearance in two taluks, viz., Palghat and Cochin. In the former three extra hands were employed for three months, and in the latter the services of two permanent Vaccinators were temporarily given till small-pox subsided. There are two Local Fund Circles in this district, and one Deputy Inspector is employed for both. Dr. Shortt suggested (according to the new Vaccination Code) to the President that a separate Deputy Inspector should be employed for the Tellicherry Circle, but no action has been taken. The total of infants operated on under one year of age was 80, comprising 45 males and 35 females. There is an increase of 38 cases of infantile vaccination when compared with the preceding year. Vaccination of infants is carried on only in municipal towns and not in the interior parts of the taluks, where objections are raised to vaccinating even adults. The conduct of all the Vaccinators, with the exception of one, is good. One Second-class Vaccinator was dismissed by the President for unsatisfactory work. The working lymph in use is good. 25 vaccination certificates were granted to candidates appearing for the Uncovenanted Civil Service Examinations. Rupees 29 were spent on account of batta to mothers for supplying vaccine lymph. The average cost of each successful case was 3 annas and 3 pies.

On the 1st December I left Madras and arrived at Beypore on the 2nd, and went on to Calicut on the 3rd. At Calicut there are three Municipal Vaccinators (one first-class and two second-class). These three Vaccinators do on an average about 52 cases each every month. I examined their registers and instruments and found them in good order. The First-class Vaccinator has very little knowledge of English. Vaccination is rather backward at Calicut, and there were

Digitized by Google

many children going about unvaccinated. I saw 26 recent cases of vaccination, and the lymph in all appeared very good. I visited four native schools and found the following results, viz.:—

Vaccinated ...	143
Marked with small-pox	36
Unprotected ...	87
Total ...	266

In many of the old cases of vaccination the cicatrices were not well marked. Two Vaccinators are quite sufficient to do the work at Calicut.

On the 14th I arrived at Cannanore (from Mangalore), and remained till the 17th. The Municipal Vaccinator of Cannanore works well, and the Civil Surgeon told me that this Vaccinator has always produced a good lymph subject when required to do so. I saw fifteen children who had been vaccinated six days before and the lymph was very good. The register and instruments belonging to the Municipal Vaccinator were well kept, but he had no tube lymph.

On the 17th I left Cannanore and went on to Tellicherry. Vaccination at Tellicherry is backward and most of the children running about were unprotected. Each successful case, when verified by the Civil Surgeon, receives 4 annas. In five schools I visited I found the following results, viz.:—

Vaccinated ...	17
Marked with small-pox	13
Unprotected	57
Total ...	87

The cicatrices in the vaccinated children were not well marked. I saw twelve lymph subjects, but in all these cases the vesicles were very small. The register and instruments belonging to the Municipal Vaccinator were in good order, but he had no tube lymph, only scabs.

On the 18th I left Tellicherry and arrived at Calicut on the 19th. The Vaccinator belonging to the Calicut Taluk was absent, as he had been granted one month's leave by the Local Fund Board. No man had been appointed to act for him, and so no work was being done in the taluk.

On the 20th I went on to Beypore from Calicut. Vaccination at Beypore is also very backward, but the people do not appear to object to it. The Vaccinator of the Beypore Taluk is a second-class man, and was only appointed in November. He seems to be in Calicut very often. I saw a few old cases of vaccination about Beypore, but a great many people had marks of small-pox. Four cases which had been vaccinated a few days before were all unsuccessful. Three children were vaccinated before me from tube lymph, and the parents did not object.

NELLORE DISTRICT—NELLORE CIRCLE.

Establishment.

1 First-class Deputy Inspector—C. N. Ramasawmy.
4 do. Vaccinators.
7 Second-class do.
4 paid Probationers.
1 Peon.
2 Estate Vaccinators.
Area, 3,895 square miles.
Population, 703,867.

The total number of persons vaccinated was 6,906 against 33,212 in the previous year. The comparison shows a decrease of 26,306 cases during the year under notice, and the Deputy Inspector attributes it first, principally to the abolition of famine-relief camps, &c.; secondly, to the unwillingness shown by the resident villagers in getting their children vaccinated in consequence of fever and dysentery

Digitized by Google

which were prevalent during the year; thirdly, to the want of interest on the part of village officials when the Vaccinators apply to them for aid; and lastly, to the doing away with the services of the temporary Vaccinators employed during the past year. Some of the Vaccinators suffered from fever and other diseases, and two were on the sick list throughout the year. Of the above total the Estate Vaccinators performed 421 operations against 1,932 in the previous year. First-class Vaccinator P. Vadamalay, No. 166, vaccinated 851 cases, being the largest number among the staff. Obstructions to the spread of vaccination still exist among the people, as they believe small-pox to be a goddess. The Deputy Inspector states that the only way of removing such objections is the introduction of compulsory measures. Small-pox was prevalent for nine months in the year, the disease being severe in Gudur, Nellore and Venkatagiri. The total number of deaths from small-pox was 143. The Deputy Inspector suggests that village headmen be urged to get their children vaccinated first, so as to set an example to the villagers. 194 children under one year were vaccinated, consisting of 101 males and 93 females. Infantile vaccination is very low, and the parents strongly object to have their children vaccinated when under one year of age. 12 vaccination certificates were granted to candidates. The Deputy Inspector complains of the small pay, viz., Rupees 6, sanctioned to the peon, who is expected to travel with him, and requests that batta may be conceded to him, as such privileges are granted to himself and the Vaccinators. The average cost of each successful case was 8 annas and 9 pies.

On the 17th October I left Kavali and went on to Nellore, where I remained till the 23rd. Vaccination in the Municipality of Nellore is fair, and the Vaccinator, who is a second-class man, seems to be energetic. I saw sixteen lymph subjects, all having six well raised vesicles. I also saw 75 children who had been vaccinated in August and September, and they all had six well raised cicatrices. I examined the register and instruments belonging to the Municipal Vaccinator, and found they were all well kept.

At Chintareddipallem, a village three miles from Nellore, I saw six children who had been vaccinated by First-class Vaccinator P. Vadamalay and Probationary Vaccinator Seetha Persad of the Nellore Taluk in September, and all were very successful. The registers and instruments belonging to the First-class and Probationary Vaccinators of the Nellore Taluk were well kept.

While at Nellore I examined the records and books belonging to the Deputy Inspector of this circle and found them neatly kept, but some of the books are not written up to date.

On the 23rd I left Nellore and went on to Gudur. At Gudur I saw 79 children who had been vaccinated by First-class Vaccinator Yakambarum of the Gudur Taluk. These children had all six well-marked cicatrices. While at Gudur I examined the registers and instruments belonging to the Vaccinators of the Gudur Taluk and found them all well kept.

On the 24th I left Gudur and went on to Venkatagiri. At Venkatagiri I saw 49 children who had been vaccinated by the two Zemindari Vaccinators. Six of these were lymph subjects with well raised vesicles. I examined the registers and instruments of these Zemindari Vaccinators and found them well kept. One Vaccinator is only 16 years of age and too young to have much influence in persuading people to have their children vaccinated.

ONGOLE CIRCLE.

ESTABLISHMENT.

1 First-class Deputy Inspector—M. Basker Row.
4 do. Vaccinators.
9 Second-class do.
8 paid Probationers.
2 temporary Vaccinators.
1 Peon.
Area, 3,255 square miles.
Population, 643,022.

Digitized by Google

The Deputy Inspector reports 7,940 operations during the year under review with a success of 89 per cent.; the results in 491 cases were unknown. On comparison with the work of the preceding year there is a decrease of 4,372 operations. The services of probationers and temporary Vaccinators who were entertained in the year 1877 owing to the severe outbreak of small-pox were dispensed with by the end of December 1878. Of the total given above 7,451 cases were performed by the Local Fund staff, 361 by two temporary, and 128 by the private Vaccinator. First-class Vaccinator Abdul Whab, No. 477, has obtained the largest number of cases, viz., 712. The inhabitants of this circle are very much opposed to vaccination. Much difficulty also is experienced in getting lymph from the vaccinated children, for the parents will not allow of its being extracted.

The Deputy Inspector suggests that vaccination be made compulsory. The number of infants vaccinated under one year of age was 413, comprising 226 males and 187 females. Small-pox made its appearance in the circle during the year, and to those places where it was prevalent Vaccinators were at once sent to vaccinate the unprotected. The cost of each successful operation was 10 annas.

On the 9th October I left Guntoor and arrived at Ongole on the 11th. Vaccination in Ongole is very backward, and the Municipal Vaccinator, who is a first-class man, does very little work. In March 10 were vaccinated (all unsuccessful), in April 11, in May 10 (4 unsuccessful), in June 6 (5 unsuccessful), in July 12, in August 4, and in September 6. The number of births registered from 1st April to 30th September was 101, while the vaccinations for that time were only 49. The Municipal Vaccinator is the Registrar of Births and Deaths in Ongole. Only 32 children were shown me, and in these cases the cicatrices were not well marked. In a school of forty scholars only ten had vaccination marks. No batta is given to the children when vaccinated, and I think it would be a good plan to do so, as it might induce many people to have their children vaccinated. I examined the Municipal Vaccinator's register and instruments. The register was carelessly kept, and the column "No. of vesicles" was wrongly marked in many cases.

While at Ongole I examined the registers and instruments belonging to the three Vaccinators and three Probationary Vaccinators of the Ongole Taluk. Some of these had been vaccinating children in Ongole Municipality, but this I ordered was not to take place again, as the Municipal Vaccinator is quite able to vaccinate all the children in Ongole.

On the 15th I left Ongole and went on to Singaracondah. Between Ongole and Singaracondah there were many villages, but no vaccination had been done in them since 1874. At Singaracondah I only saw four children who had been vaccinated a year ago. The Village Munsif said there were no more children to vaccinate. The population of Singaracondah is 1,002. From 1st January to 30th September 1878 there had been eight deaths but no births.

On the 16th I left Singaracondah and went on to Kavali. At Settoo, a large village twelve miles from Singaracondah, no vaccination had been done for a year. At Kavali I only saw 25 children who had been vaccinated. These children had all six well-marked cicatrices. There were many children going about unprotected. I examined the registers and instruments of temporary First-class Vaccinator S. Rungiah, Second-class Vaccinator V. C. Ramasawmy, and probationary Vaccinator Theroovengadiah of the Kavali Taluk, and found them well kept.

NORTH ARCOT DISTRICT—VELLORE CIRCLE.

ESTABLISHMENT.

1 First-class Deputy Inspector—C. Aroomooga Chetty.
5 do. Vaccinators.
3 Second-class do.
2 paid Probationers.
1 Peon.
5 Temporary Vaccinators.
1 Estate Vaccinator.
Area, 1,633 square miles.
Population, 638,861.

Digitized by Google

The comparative numbers vaccinated during 1877-78 and 1878 are given below :—

1877-78	32,718
1878	17,152

The comparison shows that there is a decrease of 15,566 operations. This the Deputy Inspector says is due to a less amount of work having been performed in the several relief-camps and nurseries, &c. than in the preceding year, and also to the frequent occurrence of vacancies among the Vaccinators. The average number of cases vaccinated by each Vaccinator was 858. The highest number, 1,460, was operated on by Second-class Vaccinator A. Sadasiva Moodelly. Objections to the spread of vaccination still continue in most parts of the circle. The Vaccinators suffered great difficulties in obtaining the minimum number of cases required under the new rules considering the condition of the district after the famine. The people in some villages do not listen to the Vaccinators, who wait at their doors to try and get their children vaccinated, but say the day is not good, &c. Every Vaccinator is supposed to visit every village in his range. There is great difficulty in getting lymph from vaccinated children, notwithstanding that batta is paid to mothers. In the absence of arm lymph the Vaccinators had to use preserved lymph, and the result was failure in many of those subjects. Many cases were returned as unknown in consequence of the people in the relief-camps and nurseries, &c. having gone away a few days after vaccination, and many were unsuccessful owing to their emaciated condition. Small-pox was not reported to be prevalent, and the Vaccinators' services were not specially required as was the case during the preceding year. The Deputy Inspector suggests for the pushing on of vaccination, that all the village officials be first required to submit themselves and their families, &c. to the operation, so as to set an example to the villagers, who generally look to them for advice. The vaccination certificates, he thinks, should also be furnished by Monigars and Kurnums. The number of infants vaccinated under one year was 929, comprising 482 males and 447 females. 22 vaccination certificates were given to candidates going up for examinations. The Local Fund Board has sanctioned extra allowance to Vaccinators who do over 100 cases per month, but no Vaccinator has been able to gain such, as it is difficult to find subjects for vaccination owing to the present state of the district. The Deputy Inspector's travelling batta was raised from 8 to 12 annas from August 1878, and the Vaccinators of the first and second class were allowed 4 and 2 annas respectively per diem. Batta of 1 anna was allowed to the peon and was only drawn for two months, but by the order of the Board of Revenue the batta was disallowed. Only Rupees 2-8-6 were spent as batta to mothers for furnishing lymph. The conduct of the staff is reported satisfactory. The percentage of success was 84·80, and the cost of each successful operation was Annas 3 and Pies 7.

CHITTUR CIRCLE.

Establishment.

1 First-class Deputy Inspector—Mr. R. Henricus.
8 do. Vaccinators.
9 Second-class do.
4 paid Probationers.
1 Peon.
Area, 5,221 square miles.
Population, 1,326,292.

The Deputy Inspector reports 18,331 operations during the year under review with a percentage of 93 of success. The results in 903 cases were not known. The total comprises 9,754 males and 8,577 females, showing a decrease of 9,459 cases below that of the previous year, which was due to the abolition of relief-works. The Deputy Inspector, R. Henricus, of this circle was granted sick leave for four months and six days during the latter part of the year, on medical certificate, and

Digitized by Google

First-class Vaccinator T. Balakistnen Naidoo, of the Negapatam Circle, was appointed to act for him. First-class Vaccinator C. Hoossain Sheriff performed the largest number of cases, viz., 4,230, among the whole staff. Very slight objections to the spread of vaccination are met with in this circle, and the people who were opposed to it are now gradually becoming aware of the benefits of it. Small-pox was prevalent to some extent in the circle, especially in the division of Tirutani and among coolies working on relief-works. Means were taken at once to check the disease in its progress by vaccinating the unprotected. Objections are raised occasionally by the people to vaccination when small-pox is prevailing in their villages or in the neighbourhood. Some inoculators are to be found in the northern parts of the circle, and they visit the villages where small-pox prevails and inoculate those who wish it. They then carry the small-pox matter to neighbouring villages and induce people to be inoculated. It is very difficult to catch these inoculators as the people will not give up their names or residences. 1,209 infants under one year of age, comprising 640 males and 569 females, were vaccinated during the year. The average cost of each successful operation was 3 annas and 9 pies.

On the 25th October I left Venkatagiri, and on my return to Madras went on to Kalastri. At Kalastri I saw 52 children who had been vaccinated by Second-class Vaccinator Venkatarunga Row of the Kalastri Division. These children had all six well-marked cicatrices. In the famine-relief camp most of the children had been vaccinated.

SALEM DISTRICT—SALEM CIRCLE.

Establishment.

1 First-class Deputy Inspector—Meer Muzzerally Saib.
6 do. Vaccinators.
11 Second-class do.
1 Peon.
Area, 4,779 square miles.
Population, 1,363,087.

The comparative numbers vaccinated in this circle during the past and previous years are as follow:—

1877-78	34,863
1878	17,162

The numerical comparison shows a decrease of half of the total operated on in 1877-78. This is chiefly due to the number of people in famine-relief camps and on the road works having gradually decreased, and ultimately to the abolition of relief-works. The total comprises 8,587 males and 8,575 females, with a percentage of 95·11 of success. Second-class Vaccinator Sowrinayagum, No. 935, has operated on the largest number of cases, viz., 1,894, among the whole staff. Vaccination is objected to in this district, although there is now no religious prejudice whatever against its practice, and the Deputy Inspector suggests that the only way to push on vaccination is to make it compulsory. One report of small-pox having broken out was received by the Deputy Inspector, and the Vaccinator attached to that division vaccinated all that were willing to submit to the operation. 412 infants under one year, consisting of 247 males and 165 females, were vaccinated. The conduct of the staff has been generally good. Two Vaccinators were dismissed from the service for insubordination. The cost of each successful operation is Annas 3 and Pies 6. The Deputy Inspector of this circle receives a consolidated travelling allowance of Rupees 15 per mensem, and I suggest that this should be abolished and a batta of 8 or 12 annas per diem be granted when he is out in camp. He has inspected during the year only 189 villages, giving an average of 16 for each month.

Digitized by Google

OOSOOR CIRCLE.

Establishment.

1 Second-class Deputy Inspector—C. Poonoosawmy Pillay.
3 First-class Vaccinators.
6 Second-class do.
3 paid Probationers.
1 Peon.
12 temporary Vaccinators.
Area, 2,825 square miles.
Population, 553,896.

The total number operated on during the year under review was 11,978, and their results were 9,710 successful, 975 unsuccessful, and 1,293 unknown. On comparison with the number vaccinated during the preceding year there is a decrease of 5,831 cases. This was due, first, to many of the Vaccinators being sick during the most part of the year; secondly, to the abolition of famine-relief camps, &c.; and lastly, to the doing away with the services of temporary Vaccinators. The Deputy Inspector of this circle was promoted and transferred to the Tinnevelly Circle in November, and a First-class Vaccinator named Poonoosawmy Pillay, of the Coimbatore District, was appointed. He assumed charge of the office at the close of the year. Small-pox appeared in certain remote villages, and on the receipt of information, necessary steps were taken to stamp out the disease by sending Vaccinators to vaccinate the unprotected. The Deputy Inspector suggests that in order to promote vaccination in the circle village officials be urged to render all possible aid to Vaccinators in their work, and to have their children vaccinated as an example to the villagers. Much more work might be done if the village heads were required to find out all the unvaccinated and produce them before the Vaccinators whenever they visit the villages. Second-class Vaccinator Seetharam has obtained 813 cases, being the largest number among the staff; 873 infants under one year of age were vaccinated, consisting of 435 males and 438 females; 767 of these were returned as successful, 51 unsuccessful, and 55 unknown. The conduct of the Vaccinators has been uniformly good. The cost per successful case was 4 annas and 10 pies, being higher than the previous year by 2 annas and 2 pies. The Deputy Inspector of this circle is allowed a travelling batta of 8 annas per diem when he is out in camp.

SOUTH ARCOT DISTRICT—CUDDALORE CIRCLE.

Establishment.

1 First-class Deputy Inspector—Mahomed Ibrahim.
5 do. Vaccinators.
8 Second-class do.
1 Peon.
2 Temporary Vaccinators.
Area, 3,370 square miles.
Population, 1,101,324.

The Deputy Inspector reports 11,586 operations during the year under review, with a success of 90·1 per cent.: the results in 653 cases were not known. On comparison with the work of the preceding year there is a slight increase of 572 operations, attributed chiefly to the employment of two temporary Vaccinators. for eight months. The total comprises 6,330 males and 5,256 females. Of this number 1,216 were performed by the temporary staff with a success of 90·3 per cent. First-class Vaccinator Aroonachellum Moodelly has obtained 2,245 operations, being the largest number among the staff, and he also stood first the previous year. Obstructions to the spread of vaccination are now gradually disappearing in the towns as the people are beginning to appreciate its benefits, but in the small villages the people object to vaccination as they are afraid of making the small-pox goddess

Digitized by Google

angry. It is very difficult to carry on arm-to-arm operations as parents object to any lymph being extracted from their children's arms after vaccination. The Deputy Inspector suggests compulsory vaccination, and that Village Munsifs and Kurnums, &c. have their children vaccinated so as to set an example. Small-pox was prevalent in every taluk, and two extra Vaccinators were entertained to assist the permanent staff until the disease subsided. No casualty occurred among the staff. One First-class Vaccinator was reduced to the grade of second-class for neglect of duty, and subsequently suspended for six months for insubordination for leaving the station without leave. The character of the staff, with one exception, was good. The cost of each successful case was 4 annas and 8 pies.

VIRUDACHALAM CIRCLE.

Establishment.

1 Second-class Deputy Inspector—B. Ramasawmy Naidoo.
3 First-class Vaccinators.
3 Second-class do.
2 paid Probationers.
1 Peon.
Area, 1,566 square miles.
Population, 598,684.

The Deputy Inspector reports 4,612 cases during the year under review, comprising 2,442 males and 2,170 females. The results of the operations are 3,962 successful, 264 unsuccessful, and 386 unknown, showing a percentage of 85·9 of success. On comparison with the work of the past year there is a falling off of 652 cases, which the Deputy Inspector accounts for, first, by the abolition of the relief-camps; secondly, to the prevalence of fever throughout the circle; and thirdly, to some of the Vaccinators having been on leave and no substitute could be found to act for them. Great objections still exist to vaccination among the villagers. The difficulties experienced in extracting lymph are also very great. Second-class Vaccinator S. Narainasawmy has performed the largest number of cases, viz., 1,232. 397 cases of infants under one year were vaccinated, comprising 198 males and 199 females. The cost of each successful operation was Annas 6 and Pies 5. No batta was paid to mothers for supplying lymph. The Deputy Inspector states that the Vice-President, J. Thomson, Esq., takes great interest in pushing on vaccination. One Second-class Vaccinator was dismissed for overstaying the leave granted to him. Certificates of vaccination were granted during the year. The conduct of the staff was satisfactory, and the lymph in use good. The Deputy Inspector requests that travelling allowance be granted him.

SOUTH CANARA DISTRICT.

Establishment.

1 First-class Deputy Inspector—Tarachund.
7 do. Vaccinators.
9 Second-class do.
9 probationary Vaccinators.
1 Peon.
Area, 4,393 square miles.
Population, 888,650.

The total number vaccinated in this district is 13,205, comprising 7,710 males and 5,495 females, with a success of 87·14 per cent.; the results in 1,228 were unknown. On comparing this with the number vaccinated during the preceding year there is a decrease of 29,135 cases, due to small-pox not having been so prevalent

Digitized by Google

and to the staff being incomplete. The late Deputy Inspector, Mr. Williams, was always very careless and inattentive in the discharge of his duties, and on my tour of inspection in December his work was found most unsatisfactory and disgraceful. He was dismissed from the department as unfit to continue in the service. Deputy Inspector Tarachund of the Bellary Circle was transferred to this district. First-class Vaccinator Bastian Gore performed the largest number of operations, viz., 1,559, among the staff. 326 infants under one year of age were vaccinated during the year, comprising 156 males and 170 females. Two Vaccinators were dismissed for receiving bribes from the people. One Vaccinator died.

The Hospital Assistant attached to the Amindivi Islands reports 91 cases, with a percentage of 94·28 of success; the results in six operations were unsuccessful. The cost of each successful case was 4 annas and 7 pies. This district has now been divided into two vaccine circles and a Second-class Deputy Inspector was appointed to the second circle early in January 1879. On the 5th December I left Calicut and proceeded by steamer to Mangalore, arriving there on the 7th. Vaccination at Mangalore is well carried on and the people do not object to it. About 100 cases are vaccinated every month by the Municipal Vaccinator, who is very energetic. I saw eleven cases which had been vaccinated seven days before, and in all these cases the lymph was good. Most of the children at the schools I visited had marks of vaccination. I examined the register and instruments belonging to Municipal Vaccinator J. S. Mascarhanas and found them in good order. While at Mangalore I examined the records, &c. belonging to First-class Deputy Inspector Mr. Williams, of the South Canara District. The records were badly kept and he did not bring his miscellaneous book or his service book. This man has always given me a great deal of trouble, and I found his work most disgraceful. On the 12th I left Mangalore and arrived at Manjeswar. Vaccination was very backward here, and most of the children running about had no marks of either small-pox or vaccination. In all the villages between Mangalore and Cannanore I passed through vaccination was very backward.

TANJORE DISTRICT—TANJORE CIRCLE.

Establishment.

1 First-class Deputy Inspector—Mr. James Waywood.
4 do. Vaccinators.
12 Second-class do.
2 paid Probationers.
1 Peon.
Area, 2,221 square miles.
Population, 969,738.

The Deputy Inspector reports 15,326 operations, comprising 8,141 males and 7,185 females, during the year under notice, showing a slight decrease of 473 cases when compared with the total vaccinated during the previous year. The decrease is accounted for by the employment of nearly half of the staff on cholera duty in the early part of the year, and also to the absence of some Vaccinators on leave for a few months. The highest number, viz. 1,447, was obtained by Second-class Vaccinator Annathorai Pillay. Small-pox was prevalent in some taluks of the circle, and on its appearance arrangements were at once made to arrest the disease by sending out Vaccinators to vaccinate the unprotected. The Deputy Inspector brings to notice that Vaccinators complain of the want of assistance from village heads in the co-operation of their work, and when the village authorities are requested to do so, they plead that they have other and more important work to attend to than vaccination. One small-pox inoculator was sentenced to three months' rigorous imprisonment by the Second-class Magistrate of the Mannargudi Taluk for practising inoculation in certain villages of that taluk. The number of infants vaccinated under one year of age is 1,450, of which 772 are males and 678 females. Rupees 52-11-0 were expended as batta to mothers for supplying lymph. The Deputy Inspector states that the Local Fund Board have sanctioned in their

Digitized by Google

proceedings a travelling allowance of 8 annas per diem on the 29th June, but it has not been granted to him pending a reference made to Government on the subject. A female Vaccinator was dismissed from the service for neglect of duty. Fines to the extent of Rupees 8-14-8 were imposed on the Vaccinators for short work. 35 vaccination certificates were granted to candidates appearing for Government examinations. The average percentage of success was 97·06, and the cost per successful case was Annas 3 and Pies 10.

NEGAPATAM CIRCLE.

Establishment.

1 First-class Deputy Inspector—T. Theroovengadum Pillay.
5 do. Vaccinators.
6 Second-class do.
1 Peon.
Area, 1,518 square miles.
Population, 819,981.

The numbers operated during 1877-78 and 1878 are :—

1877-78	10,919
1878	17,901

showing an increase of 6,982 cases over the work of the previous year. This the Deputy Inspector attributes to the staff of Vaccinators having been complete throughout the year. The average number vaccinated by each Vaccinator has been 1,627. 3,919 cases have been performed by Second-class Vaccinator Vurdarajooloo, No. 1,015, who stands first among the Vaccinators. Small-pox was prevalent during the year in almost all the taluks, and committed great havoc. The President, Local Fund Boards, Mr. Forster Webster, takes great interest in vaccination and encourages the Tahsildars to give the necessary aid to Vaccinators in their duties. The number of infants vaccinated under one year of age has been 1,357, of which 693 were males and 664 females. Balakistnen, First-class Vaccinator, vaccinated 353 infants, being the largest number among the staff, and he also stood first in the past year in regard to infantile vaccination. The Local Fund Board have sanctioned a travelling batta of 12 annas per diem to the Deputy Inspector of this circle, at the recommendation of the Sanitary Commissioner, from the beginning of 1879. The lymph in use was good. Rupees 15-7-0 were paid for batta to mothers of vaccinated children for supplying arm-lymph. The cost per successful operation was Annas 3. The conduct of the staff has been reported good. One Second-class Vaccinator, N. Veerasawmy, of the Local Funds, was transferred on promotion to the Municipality of Mayavaram.

TINNEVELLY DISTRICT—TINNEVELLY CIRCLE.

Establishment.

1 First-class Deputy Inspector—W. P. Chuckrapany Naidoo.
6 do. Vaccinators.
10 Second-class do.
12 paid Probationers.
Area, 3,573 square miles.
Population, 1,181,111.

The total vaccinated in this circle was 22,365, comprising 12,631 males and 9,734 females, with a success of 95·39 per cent. The results in 999 cases were unknown. On comparison with the work of the previous year there is an increase of 6,090 operations. The Deputy Inspector, Meer Hyder, was suspended in November at the request of the President, Local Fund Board, as some charges were being

Digitized by Google

preferred against him. Second-class Deputy Inspector, W. P. Chuckrapany Naidoo, of the Oosoor Circle, was promoted and posted to this circle, and he assumed charge of the office in December 1878. The vaccine staff was incomplete for some months during the year as a few Vaccinators were away on leave, and a Second-class Vaccinator, Nellyappa Pillay, was suspended by the President, Local Fund Board, for one year for leaving the station without the permission of the Deputy Inspector. The number of infants vaccinated was 2,439, of which 2,374 were successful, 108 unsuccessful, and 57 unknown. Batta to the amount of Rupees 49-13-2 was paid to mothers for furnishing vaccine lymph. The average number performed by each Vaccinator was 798, and the largest number, viz., 2,374, was obtained by Second-class Vaccinator Palania Pillay, No. 1,121. The people in some villages still raise objections to the extraction of lymph from the arms of children vaccinated, and some will not bring the children for inspection when called upon in case that lymph would be taken, and thereby they think the effects of vaccination would be lessened. The Deputy Inspector suggests for the pushing on of vaccination in the circle that village heads be required by notification in the District Gazette to produce a list of unprotected people whenever a Vaccinator visits any village, and to assist him in the co-operation of his work. In this way, he thinks, much might be done in extending vaccination amongst the community at large. Small-pox prevailed to a slight extent in the circle, and means were at once taken to check the progress of the disease. The conduct of the Vaccinators in general is reported to be unsatisfactory. The Local Fund Board passed, in their resolution dated 17th July 1878, a reward to any Vaccinator who would successfully vaccinate 1,200 cases a year, and a sum of Rupees 10 was sanctioned to be expended on a ring or other present. The Collector, Mr. Pennington, takes a warm interest in vaccination, and issues frequent orders on the subject.

SHERMADEVI CIRCLE.

Establishment.

1 Second-class Deputy Inspector—T. M. Veerappa Pillay.
3 First-class Vaccinators.
4 Second-class do.
1 paid Probationer.
1 Peon.
Area, 1,244 square miles.
Population, 463,294.

The total number of cases vaccinated in this circle was 6,709 against 6,578 in the preceding year, thus showing a small increase of 131 cases with a percentage of 85·69 of success. The Vaccinators exerted themselves in promoting vaccination, but had the staff been complete throughout the year the increase in the number of operations would have been greater. One First-class Vaccinator's post was vacant for a period of six months, and four other Vaccinators were away on privilege leave, two for 2 months and two for 1 month each. On comparing the individual Vaccinator's work, First-class Vaccinator Veerabuthra Pillay has obtained the largest number, viz., 2,047. Here vaccination is very backward. It is only the enlightened Hindus, Native Christians and Brahmins who readily submit to the operation. The Lubbays (a sect of Mahomedans) totally refuse to be vaccinated, fully believing that the operation is against the principles of the Koran. It is difficult to persuade these people to submit to the operation, and the Deputy Inspector suggests that it be made compulsory, as nothing but this will overcome the objections. Also that there should be an order compelling all small-pox patients to be isolated at once. 549 children under one year were vaccinated during the year with a success of 91·80 per cent.; of these 278 were males and 271 females. Rupees 30-12-6 were given as batta to mothers for furnishing arm lymph. The conduct of the Vaccinators is reported good. The cost of each successful operation was 5 annas and 1 pie.

Digitized by Google

TRICHINOPOLY DISTRICT.

Establishment.

1 First-class Deputy Inspector—A. Krishna Nair.
5 do. Vaccinators.
11 Second-class do.
3 paid Probationers.
1 Peon.
Area, 3,584 square miles.
Population, 1,112,607.

The total number of persons vaccinated during 1877-78 and 1878 are :—

1877-78	15,615
1878	14,760

The numerical comparison shows a decrease of 855 cases during the year under report, and the Deputy Inspector accounts for this by first, the services of three temporary Vaccinators who were employed for three months during the past year having been dispensed with ; secondly, one First-class Vaccinator was removed from the department on account of infirmity and old age, and his post was not filled up for two months; thirdly, owing to three Vaccinators being absent on sick leave for some months. Of the total, there were 7,785 males and 6,975 females, and the results in 13,281 cases were returned as successful. On comparing the work of each individual Vaccinator, Second-class Vaccinator Moothoosawmy will be seen to have vaccinated the largest number, viz., 1,665. The people in some parts of the district are greatly opposed to vaccination. Small-pox was prevalent in the beginning of the year in this circle, but gradually disappeared. On the receipt of small-pox returns from the Tahsildars, the Deputy Inspector directed the Vaccinators to work in the affected parts and vaccinate all the unprotected. The mortality from small-pox during the year is said to be 1,479 against 5,531 in the previous year. The Deputy Inspector states (as he did in last year's peport) that the minimum number of operations fixed for the Vaccinators in G.O., No. 1,591, dated 2nd September 1876, paragraphs 6 and 9, is too low for them, considering the local circumstances, and he urges that the numbers may be increased at once to 200 for the First-class and 150 for the Second-class Vaccinators in this district. He believes that the Vaccinators could easily procure the above figures, as every assistance is given by the Taluk and Revenue officials under orders from the Collector, Mr. Henry Sewell, who takes great interest in promoting vaccination in the district. The Local Fund Board have sanctioned, at the close of the year, the extra allowance of 1 anna for each successful case above 100 in a month or 1,200 in a year. 1,117 cases of infantile vaccination were performed, consisting of 530 males and 587 females, and the results in 998 were successful. Among the native community infantile vaccination is objected to. The character of the staff, with a few exceptions, is reported satisfactory. 28 certificates of vaccination were granted to candidates during the year. The cost per successful operation was 4 annas and 3 pies.

VIZAGAPATAM CIRCLE.

Establishment.

1 First-class Dy. Inspector of Vaccination—N. V. Subbarayadu.
7 do. Vaccinators.
9 Second-class do.
3 paid Probationers.
2 temporary Vaccinators.
Area, 11,32 square miles.
Population, 836,828.

The total number vaccinated in this circle during the year under review amounts to 10,373 operations, showing an increase of 1,257 cases over the work of the preceding year. Of the total 9,899 were vaccinated by the Local Fund staff, 430 by the temporary Vaccinators, and 44 by a Conservancy Maistry. The Deputy

Digitized by Google

Inspector of this Circle was removed to the Guntoor Circle of the Kistna District, and the present man joined the circle after the close of the year.

The largest number of operations, viz., 1,011, were done by First-class Vaccinator B. Venkatachellum. Objections to the spread of vaccination still continue in this district. The Deputy Inspector suggests that compulsory vaccination be introduced.

Small-pox was prevalent more or less throughout the circle during the year, and the Vaccinators were very energetic in trying to check the progress of the disease.

On the receipt of information that certain inoculators were working in the Sarvasiddhi Taluk, the late Deputy Inspector brought the fact to the notice of the Magistrate and applied for sanction to prosecute them; but by the time the Deputy Inspector could reach the spot, the inoculators had made their escape, and so the opportunity of prosecuting them was lost.

No batta was given to mothers for supplying vaccine lymph. 109 subjects were vaccinated under one year of age, consisting of 61 males and 48 females.

The character of the staff is reported to be satisfactory.

The Deputy Inspector complains that neither travelling batta nor the services of a peon are allowed to him. The average cost of each successful case was 7 annas and 1 pie, and the percentage of success was 98·55. On the morning of the 16th of —— I left Vizianagram and proceeded to Bimlipatam. At Chittivalsa, which is four miles from Bimlipatam, I was met by the First-class Deputy Inspector of this circle, and saw 17 cases which had been done eight days before by First-class Vaccinator I. Venkatachellam of the Bimlipatam Taluk. In all these cases the lymph appeared good, and with a few exceptions each had six vesicles. Each successful case is paid 1 anna.

At Bimlipatam the Municipal Vaccinator, who is a Second-class Vaccinator, works on the whole well, and I saw 213 old and 41 recent cases. The lymph in the recent cases appeared good, and in the old cases the cicatrices were well marked. in one part of the town where a number of fishermen live, vaccination had not been carried on very much. A few cases in the relief-camps have been vaccinated. This Municipal Vaccinator is under the orders of the Deputy Inspector of this circle, but he is in future to be under the Civil Surgeon. Each successful case receives 1 anna, which is paid by the Civil Surgeon, when such cases are brought to him. The ages in the Municipal Vaccinator's register were not entered correctly. His instruments were clean and in good order. I inspected also the instruments and register of the Konda Vaccinator, and they were in good order, but his service-book was not entered up to date.

On the 18th I left Bimlipatam and proceeded to Vizagapatam, remaining there till the 24th. The Municipal Vaccinator of Vizagapatam had only been there two months, and he showed me 93 cases he had done in the town: 53 of these had been done from one to three weeks before, and 40 six weeks before. They were all very successful, and most of them had six marks. More vaccination might be done however, as I saw many children going about unprotected. In June he vaccinated 56, while the births for that month were 73. In July 53 cases were vaccinated and the births were 77. The Vaccinator receives 1 anna for each successful case, and the subject also receives the same amount.

I visited the convent and saw 6 cases which had been done in June, and in these the cicatrices were well marked. All the children in the convent had been vaccinated. In the relief-camp I saw 38 cases which had been vaccinated in August, and they were all very successful.

The Municipal Vaccinator visited this camp once a week, and vaccinated the unprotected. On the relief-works I saw 9 cases which had been done recently, and the vesicles were well raised and each case had six. In the Lunatic Asylum all the inmates were vaccinated as well as the servants' children. The prisoners in the jail are all vaccinated by the Hospital Assistants. There was a case of small-pox in the new jail. It was in that of a child who had only been in jail a few days, and had never been vaccinated. While at Vizagapatam I examined the books, &c., of the Deputy Inspector and found them written up to date.

On the 24th I left Vizagapatam and went on to Anakapalle where I remained till the 26th. Vaccination here is very backward, and many children I met going about the streets were unvaccinated. In April only 29 cases were vaccinated, in May 20, June 19 and in July 10. Each successful case gets 1 anna, but it is not

Digitized by Google

paid to the children till a month afterwards. I saw 44 cases which had been done by the Municipal Vaccinator, but in his register both the ages and number of successful vesicles were in many cases entered wrongly. The Deputy Inspector had examined this Municipal Vaccinator's work a short time before, but could not have done so very carefully. This Vaccinator's register was not brought up to date, and some unsuccessful cases had not even been entered. A relief-camp was opened at Anakapalle on 1st August and closed on the 24th, but no vaccination had been done in it although there had been 2 cases of small-pox. While at Anakapalle I examined the register and instruments of the Vaccinator of the Anakapalle Taluk. They were in good order, but his service-book was not entered up to date.

On the morning of the 26th I left Anakapalle and went to Kasimkota, where I saw 68 old cases of vaccination and 4 lymph subjects done by Second-class Vaccinator G. Appadoo of the Kasimkota Division. Small-pox broke out here in January and February 1878, and many people then submitted to the operation. The register and instruments of this Vaccinator were in good order, but his service-book was not kept properly. In the evening I left Kasimkota and went on to Ellamanchili. On the way I saw 45 old cases of vaccination at Nursingapulli. These cases had been done by the Vaccinator of the Kasimcota Division, and most of them had only three cicatrices which were not well marked. At Ellamanchili the Conservancy Maistry who formerly had been a Zemindari Vaccinator, was ordered by the President, Local Fund Board, to vaccinate in the town, and for every successful case he was paid 1 anna. For a year he had not done any vaccination. In June a few cases were vaccinated by the Vaccinator of the Ellamanchili Taluk. Vaccination is very backward indeed at Ellamanchili, and I only saw five children when walking through the town who had been vaccinated.

I examined the register and instruments of First-class Vaccinator Purniah of the Ellamanchili Taluk and found them in good order, but his service-book was not properly kept. This Vaccinator does not appear to work very hard; for, from the 1st to 25th August only 25 cases had been vaccinated, and these all belonged to one village. On the morning of the 27th I left Ellamanchili and went on to Nakapulli, where I saw 91 cases of vaccination which had been done by Second-class Vaccinator C. H. Appalsawmy of the Nakkapilli Division, some few months before. These cases had well marked cicatrices. This Vaccinator's register and instruments were in good order, but his service-book was not entered up to date.

VIZIANAGRAM CIRCLE.

Establishment.

1 Second-class Deputy Inspector—A. Ramasawmy.
7 First-class Vaccinators.
11 Second-class do.
3 paid Probationers.
Area, 871 square miles.
Population, 937,697.

The total number of persons vaccinated in this circle was 12,535 against 12,989 in the preceding year, thus showing a slight decrease of 454 operations, attributable to the incompleteness of the staff for some time, and to the prevalence of cholera, fever, &c. Of the above total 6,298 were males and 6,237 females. The percentage of success was 98·13. First-class Vaccinator B. Sunniah of Chipurupalle Taluk vaccinated 1,788 cases, being the largest number among the staff. Obstructions to the spread of vaccination still continue as usual. Cholera, dysentery, fever and other diseases caused great mortality among the famine subjects. Small-pox was prevalent in this circle, and the Vaccinators were deputed to the affected places to vaccinate the unprotected. The Deputy Inspector suggests that vaccination be made compulsory and the practice of inoculation be strictly prohibited. Giving batta to mothers after the result of the vaccination has been known has not been a success, and the Deputy Inspector recommends that the batta be given at the time of the operation. He thinks if such were done many people could be induced to

Digitized by Google

be vaccinated. The total number of infants vaccinated under one year of age was 716: of these 706 were returned as successful. The vaccine lymph is good and the character of the staff is reported satisfactory. There were 2 dismissals, 2 transfers, 1 resignation and 3 deaths. Of the dismissals one was for neglect of duty and the other for short work. The Collector, Mr. Goodrich, takes great interest in vaccination, and gives valuable aid in pushing it on in the district. The taluk officials do not however take any notice of the Vaccinators when the assistance of the village heads is sought. The Deputy Inspector complains that the services of a peon are not allowed to him. The cost of each successful operation was 6 annas.

On the 10th August I left Chicacole and arrived on the 12th at Vizianagram, where I remained till the 16th.

I examined the work of First-class Vaccinator G. Appalsawmy, who works in the cantonment, and there I saw 57 cases which had been done recently. The cicatrices in these cases were well marked. I also saw him vaccinate two cases. His register and instruments were in good order.

The Municipal Vaccinator seems to work well, and I saw 80 cases which had recently been done by him and 282 done four months or so before. In all the cases the cicatrices were well marked. The Municipal Vaccinator's register and instruments were in good order. I visited many of the schools and found that most of the children were vaccinated.

There was a relief-camp at Vizianagram, but no vaccination had been carried on in it; but while I was there I had all the children who were fit for the operation vaccinated. I examined the records of the Second-class Deputy Inspector of this circle and found all correct.

JEYPORE HILL TRACTS.

Establishment.

1 First-class Deputy Inspector—P. Kotilingum.
6 Second-class Vaccinators.
8 do. do. paid by Zemindari estate.

The Deputy Inspector reports 2,554 operations during the year with a percentage of 8,248 of success, comprising 1,504 males and 1,050 females. Of the total 1,095 were performed by the Government Vaccinators and 1,459 by the Zemindari Vaccinators. On comparison with the work of the preceding year there is a great falling off of 1,100 operations, which the Deputy Inspector attributes to the incompleteness of the staff for some months, and that the men appointed were quite new to the place and people. The prevalence of cholera and fever among the people for the greater part of the year also interfered with the progress of vaccination. The largest number was obtained by Second-class Zemindari Vaccinator B. Chendriah, viz., 351, during the whole year, giving an average of 29 monthly. Vaccination is very backward among the hill people, and it is greatly objected to by the Khonds and Sowras, who are very uncivilized. Small-pox was prevalent during the year, but the mortality from the disease was not high. Arrangements were made for the vaccination of the unprotected, so as to check the disease from further progress. Inoculation is practised among the Hill tribes and Ooriyas, and the Deputy Inspector suggests that such be rendered illegal. Much assistance from the Taluk Magistrates and heads of villages is required to carry on vaccination vigorously among the hill tribes, so long as it is left optional with them. The families of village heads should be compelled to have their children vaccinated so as to set an example to the people. The number of children vaccinated under one year was 80, comprising 51 males and 29 females. This number is very low, taking into consideration the staff employed, viz., 14 Vaccinators, giving an average of 6 cases to each annually. The cost of each successful operation was Rupees 1-6-1.

CIVIL DISPENSARIES.

Two pupil Vaccinators are attached—one to the Old Town and one to the New Town Dispensary, Cuddalore, and work under the orders of the Medical Officer in charge of these institutions. They show a total of 397 cases with a percentage of

Digitized by Google

63·22 of success. 27 infants under one year of age were successfully vaccinated during the year. On comparison with the work of the past year there is a decrease of 187 operations. The particulars of work done by these Vaccinators are given below:—

Names of Dispensaries.	District.	Number of Vaccinators.	Total Vaccinated.	Primary Vaccination.				Percentage of Successful Cases.	
				Total.	Successful.			Primary Vaccination.	Re-vaccination.
					Under 1 year.	Above 1 & under 6 years.	Total of all Ages.		
Old Town, Cuddalore.	South Arcot District.	1	190	190	19	64	50	70	...
New Town, do.		1	207	207	8	53	57	57	...

ZEMINDARIES.

There are 13 Estate Vaccinators employed in this Presidency, and they belong to four Zemindaries, viz., Pittapur in the Godavari District, Jeypore in Vizagapatam, Venkatagiri in Nellore, and Arni Jaghire in the North Arcot District. These Vaccinators for the year under review vaccinated 5,690 cases with a percentage of 85·82 of success. On comparing this with the work of the preceding year, there appears a decrease of 423 operations. The particulars of work done by these men are given in the accompanying table:—

Zemindaries.	Districts.	Number of Vaccinators.	Sex.							Percentage of successful Cases.	
			Males.	Females.	Total.	Total.	Successful.			Primary Vaccination.	Re-vaccination.
							Under 1 year.	Over 1 & under 6 years.	Total of all Ages.		
Pittapur	Godavari	2	1,095	885	1,980	1,980	80	966	773	91·36	...
Jeypore	Vizagapatam ...	8	832	627	1,459	1,459	35	862	320	83·41	...
Venkatagiri	Nellore	2	255	166	421	420	11	142	121	65·23	100
Arni Jaghire ...	North Arcot ...	1	915	915	1,830	1,830	39	492	1,102	89·23	...
	Total ...	13	2,593	5,690	5,690	5,689	165	2,462	2,316	85·82	100

MUNICIPALITIES.

There are in all 49 Municipalities. The Collectorate of Madras, which was hitherto shown under Districts and Circles, is now brought under Municipalities, and the abstract of the report of the Deputy Inspector of Vaccination is given below. The total of work done during the year in the various Municipalities is 83,106, showing a decrease of 92,517 cases when compared with the number vaccinated during the past year. Two Municipalities were started during the year, viz., Anakapalle and Ongole. The Municipality of Gooty employs no Municipal Vaccinator, and no returns are received from it. The particulars of work done in the several Municipalities of the Presidency are given in the Appendix No. I in alphabetical order.

MADRAS MUNICIPALITY.

Establishment.

1 First-class Deputy Inspector—K. Vurtharajulu Naidu.
4 do. Vaccinators.
12 Second-class do.
3 Peons.
Area, 27 square miles.
Population, 397,552.

Digitized by Google

The total number vaccinated during the year under report has been 39,376, showing a decrease of 76,959 cases when compared with the work of the previous year. Of the total 20,090 were successful, 1,621 unsuccessful, and 17,665 unknown. The decrease is attributed to the abolition of famine relief camps and nurseries, &c., where thousands of people were vaccinated during 1877-78. There is not much objection in the town to vaccination, but educated people will not allow the vaccine lymph to be extracted from the arms of their children. The poor and low-caste people, however, are very willing to submit both to the operation and also to allow of lymph being extracted for the sake of the batta. Small-pox was not as prevalent this year as last. The total number of deaths from small-pox was 429, showing a decrease of 5,836 below that of the former year. 2,477 infants under one year of age were vaccinated; 255 charges of vaccine lymph were supplied to the various medical officers in the town and suburbs. The Deputy Inspector suggests that compulsory vaccination in the city of Madras be introduced for the effectual spread of vaccination. Rupees 1,565-12-0 were paid on account of batta to mothers and children vaccinated. 635 certificates of vaccination were granted to candidates appearing for Government examinations. The average number performed by each Vaccinator during a month has been 280 cases. One Vaccinator was dismissed for rendering false returns and one Vaccinator resigned. The cost per successful case has been Annas 3 and Pies 11, and the percentage of success 92·25. The vaccine lymph in use is good and effective.

VACCINE DEPÔT.

At this institution Second-class Vaccinator Ragoonath Singh worked during the year, and vaccinated 2,000 cases with a success of 83·51 per cent. People now seldom resort to the Vaccine Depôt, because they find opportunities of getting their children operated on at their own doors, where Vaccinators visit daily. When the Vaccinator finds no subject for vaccination at the depôt, he visits the adjoining villages and streets to enable him to keep up a supply of vaccine lymph. The conduct of the Vaccinator has been reported good.

RAILWAY.

The Apothecaries attached to the Madras Railway Company did no vaccination during the year, as appears from the annual return received from the Consulting Physician.

MEDICAL SUBORDINATES.

The total number vaccinated by Medical Subordinates during the year was 21,386, with an average percentage of 59·87 of success. Of these 1,636 were children successfully vaccinated under one year of age, 11,168 were above one year. The total comprises 17,037 males and 4,349 females. On comparison with the work of the preceding year there appears a decrease of 7,198 operations. The largest number of cases was performed in the Southern Division, Malabar and South Canara, viz., 8,331 with a success of 73·90 per cent., and the lowest in the Pegu Division, viz., 132 with an average of 40·15 per cent. of success.

JAS. ANDERSON LAING, Surgeon,
Inspector of Vaccination and Deputy Sanitary Commissioner.

OFFICE OF INSPECTOR OF VACCINATION AND DEPUTY SANITARY COMMISSIONER,
MADRAS, 23*rd April* 1879.

Digitized by Google

A—VACCINE DEPARTMENT.

STATEMENT No. I *showing Particulars of Vaccination in the Madras Presidency during the Calendar Year* 1878.

Number.	Circles and Districts.	Population of District or Circle according to Census of 1871.	Average Population per Square Mile.	Average Number of Vaccinators employed throughout the Season.	Total Number of Persons vaccinated.			Average Number of Persons vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully vaccinated per 1,000 of Population.	Average Annual Number of Persons successfully vaccinated during previous 5 Years.		Average Annual Number of Deaths from Small-pox during previous 5 Years.	
					Males.	Females.	Total.		Total.	Successful. Under 1 Year.	Successful. Over 1 and under 6 Years.	Successful. Total of all Ages.	Total.	Successful.	Primary.	Re-vaccination.		Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	*Chingleput District.*																				
	Permanent Vaccinators ...	900,857	344	13	5,262	4,055	9,317	716	9,317	723	4,309	7,848	...	...	84·23	...	...	...	...	...	...
	Temporary do. ...	...	...	3	386	284	670	223	670	26	294	456	...	...	68·05	...	...	...	...	...	...
	Total of District ...	900,857	344	16	5,648	4,339	9,987	624	9,987	749	4,603	8,304	...	...	83·14	...	9	11,688	12	2,287	2
	North Arcot District.																				
2	Chittur Circle— Permanent Vaccinators ...	1,826,292	254	21	9,754	8,577	18,331	873	18,331	1,153	6,505	17,178	...	...	93·71	...	12	11,124	8	...	...
	Total of Circle ...	1,826,292	254	21	9,754	8,577	18,331	873	18,331	1,153	6,505	17,178	...	...	93·71	...	12	11,124	8	1,026	·77
3	Vellore Circle— Permanent Vaccinators ...	638,861	391	13	3,893	3,666	7,559	581	7,543	580	2,705	6,746	16	9	89·43	56·25	...	...	...	...	...
	Temporary do. ...	...	...	6	3,851	3,912	7,763	1,294	7,689	209	1,614	6,167	74	26	80·20	35·13	...	...	...	...	...
	Zemindari do. ...	...	...	1	915	915	1,830	1,830	1,830	39	492	1,633	...	...	89·23	...	...	...	...	...	...
	Total of Circle ...	638,861	391	20	8,659	8,493	17,152	857	17,062	828	4,811	14,546	90	35	85·25	38·88	22	16,562	25	2,498	3·9
	Total of District ...	1,965,153	645	41	18,413	17,070	35,483	865	35,393	1,981	11,316	31,724	90	35	86·80	38·88	16	27,686	14	3,544	2·7
	South Arcot District.																				
4	Cuddalore Circle— Permanent Vaccinators ...	1,101,324	326	13	5,646	4,724	10,370	798	10,337	1,463	5,348	9,297	33	28	89·65	84·84	...	...	...	...	...
	Temporary do. ...	...	...	2	684	532	1,216	608	1,216	123	709	1,099	...	...	90·37	...	...	...	...	...	...
	Total of Circle ...	1,101,324	326	15	6,330	5,256	11,586	772	11,553	1,586	6,057	10,396	32	28	89·73	84·84	9	12,424	11	1,968	1·8

Digitized by Google

5	Virudachalam Circle— Permanent Vaccinators ...	596,684	382	8	2,442	2,170	4,612	576	4,612	338	2,481	3,962	...	...	85·90	...	...	...	...	...	...
	Total of Circle ...	596,684	382	8	2,442	2,173	4,612	576	4,612	338	2,481	3,962	...	...	85·90	...	7	4,747	8	732	1·2
	Total of District ...	1,700,008	708	23	8,772	7,426	16,198	704	16,165	1,924	8,538	14,358	33	28	88·82	84·84	8	17,171	10	2,745	1
6	*Trichinopoly District.*																				
	Permanent Vaccinators ...	1,112,607	310	21	7,785	6,975	14,760	708	14,760	998	7,367	13,281	...	...	89·97	...	...	...	...	...	...
	Total of District ...	1,112,607	310	21	7,785	6,975	14,760	708	14,760	998	7,367	13,281	...	...	89·97	...	12	15,982	14	1,760	1·58
	Tanjore District.																				
7	Tanjore Circle— Permanent Vaccinators ...	969,738	436	18	8,141	7,185	15,326	851	15,326	1,371	6,624	14,367	...	...	93·74	...	...	...	...	...	...
	Total of Circle ...	969,738	436	18	8,141	7,185	15,326	851	15,326	1,371	6,624	14,367	...	...	93·74	...	15	9,904	10	2,089	2
8	Negapatam Circle— Permanent Vaccinators ...	819,981	540	11	9,622	8,279	17,901	1,627	17,468	1,253	8,869	16,091	433	239	92·11	55·19	...	...	...	...	...
	Total of Circle ...	819,981	540	11	9,622	8,279	17,901	1,627	17,468	1,253	6,869	16,091	433	239	92·11	55·19	10	8,147	9	1,406	1·7
	Total of District ...	1,789,719	976	29	17,763	15,464	33,227	1,145	32,794	2,624	15,493	30,458	433	239	92·87	55·19	16	19,051	10	3,685	2
	Madura District.																				
9	Madura Circle— Permanent Vaccinators ...	1,246,798	255	34	13,824	12,518	26,342	775	26,300	3,561	13,367	24,467	42	31	98·03	73·80	...	...	...	...	...
	Total of Circle ...	1,246,798	255	34	13,824	12,518	26,342	775	26,300	3,561	13,367	24,467	42	31	98·03	73·80	19	22,801	17	378	·21
10	Dindigul Circle— Permanent Vaccinators ... Hospital Assistant as Vaccinator in the Pulney Hills.	954,965 ...	244 ...	18 ...	5,931 45	5,324 44	11,255 89	625 89	11,253 73	3,133 35	6,256 29	10,928 64	2 16	2 10	97·11 87·67	100· 62·50	... ...	... ...	... ...	... ...	... ...
	Total of Circle ...	954,965	244	18	5,976	5,368	11,344	597	11,326	3,168	6,285	10,992	18	12	97·05	66·66	11	12,209	12	1,427	1·4
	Total of District ...	2,201,763	499	52	19,800	17,886	37,686	724	37,626	6,729	19,652	35,459	60	43	94·24	71·66	16	34,510	15	1,822	·82
	Tinnevelly District.																				
11	Tinnevelly Circle— Permanent Vaccinators ...	1,181,111	330	28	12,631	9,734	22,365	798	22,333	2,389	11,067	20,399	32	24	91·34	75·	...	...	...	...	...
	Total of Circle ...	1,181,111	330	28	12,631	9,734	22,365	798	22,333	2,389	11,067	20,399	32	24	91·34	75·	17	13,184	72	1,726	1·4

A—VACCINE DEPARTMENT.

STATEMENT No. I *showing Particulars of Vaccination in the Madras Presidency during the Calendar Year* 1878—(Continued).

Number.	Circles and Districts.	Population of District or Circle according to Census of 1871.	Average Population per Square Mile.	Average Number of Vaccinators employed throughout the Season.	Total Number of Persons vaccinated.			Average Number of Persons vaccinated by each Vaccinator.	Primary Vaccination. Total.	Primary Vaccination. Successful. Under 1 Year.	Primary Vaccination. Successful. Over 1 and under 6 Years.	Primary Vaccination. Successful. Total of all Ages.	Re-vaccination. Total.	Re-vaccination. Successful.	Percentage of Successful Cases. Primary.	Percentage of Successful Cases. Re-vaccination.	Persons successfully vaccinated per 1,000 of Population.	Average Annual Number of Persons successfully vaccinated during previous 5 Years. Number.	Average Annual Number of Persons successfully vaccinated during previous 5 Years. Ratio per 1,000.	Average Annual Number of Deaths from Small-pox during previous 5 Years. Number.	Average Annual Number of Deaths from Small-pox during previous 5 Years. Ratio per 1,000.
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
					Males.	Females.	Total.														
12	Shermadevi Circle—Permanent Vaccinators ...	463,294	372	8	3,720	2,989	6,709	838	6,669	503	3,443	5,715	40	7	85·69	17·5	...	...	...	...	...
	Total of Circle ...	463,294	372	8	3,725	2,989	6,709	838	6,669	503	3,443	5,715	40	7	85·69	17·5	12	5,188	11	437	·94
	Total of District ...	1,644,405	702	36	16,351	12,723	29,074	807	29,002	2,892	14,530	26,114	72	31	89·69	43·05	15	18,372	11	2,199	1
	Cuddapah District.																				
13	Cuddapah Circle—Permanent Vaccinators ...	784,750	169	17	3,642	2,272	5,914	347	5,914	214	1,973	4,700	...	..	79·47	...	...	...	...	...	...
	Total of Circle ...	784,750	169	17	3,642	2,272	5,914	347	5,914	114	1,973	4,700	...	...	79·47	...	5	4,585	5	740	·94
14	Madhanapalle Circle—Permanent Vaccinators ...	550,169	160	16	3,005	2,511	5,516	345	5,487	100	141	2,882	29	9	99·47	31·03	...	...	...	...	...
	Total of Circle ...	550,169	160	16	3,005	2,511	5,516	345	5,487	100	141	2,882	29	9	99·47	31·03	5	3,276	5	1,105	2
	Total of District ...	1,334,919	329	33	6,647	4,783	11,430	346	11,401	314	2,114	7,582	29	9	66·50	31·03	10	7,861	5	1,854	1·38
	Kurnool District.																				
15	Permanent Vaccinators ...	926,766	120	13	2,106	1,229	3,335	258	2,866	107	1,428	2,514	469	318	87·72	67·59	...	...	...	...	...
	Total of District ...	926,766	120	13	2,106	1,229	3,335	258	2,866	107	1,428	2,514	469	318	87·72	67·59	3	2,736	2	1,139	1·22

Digitized by Google

	Bellary District.																				
16	Bellary Circle— Permanent Vaccinators ...	595,172	129	13	3,252	3,045	6,297	484	6,268	1,556	3,063	4,974	29	9	79·35	11·03	...	...	...	...	...
	Total of Circle ...	595,172	129	13	3,252	3,045	6,297	484	6,268	1,556	3,063	4,974	29	9	79·35	11·03	8	9,187	15	524	·88
17	Gooty Circle— Permanent Vaccinators ...	609,962	163	6	2,429	2,046	4,475	746	4,467	1,469	2,378	4,178	8	6	93·53	75·	...	...	...	...	...
	Total of Circle ...	609,922	163	6	2,429	2,046	4,475	746	4,467	1,469	2,378	4,178	8	6	93·53	75·	6	3,986	6	842	1·3
18	Penukonda Circle— Permanent Vaccinators ...	376,715	130	4	927	883	1,810	452	1,734	509	827	1,470	76	18	84·77	23·67	...	...	...	...	...
	Total of Circle ...	376,715	130	4	927	883	1,810	452	1,734	509	827	1,470	76	18	84·77	23·67	3	5,506	14	654	1·7
	Total of District ...	1,581,869	422	23	6,608	5,974	12,582	547	12,469	3,534	6,268	10,622	113	33	85·18	29·20	6	18,679	11	2,054	1·2
	Salem District.																				
19	Salem Circle— Permanent Vaccinators ...	1,363,087	285	17	8,587	8,575	17,162	1,009	17,092	394	6,047	16,324	70	70	95·50	100·	...	...	...	...	...
	Total of Circle ...	1,363,087	285	17	8,587	8,575	17,162	1,009	17,092	394	6,047	16,324	70	70	95·50	100·	12	14,839	10	3,503	2·5
20	Oosoor Circle— Permanent Vaccinators ... Temporary do. ...	553,896 ...	196 ...	12 12	3,790 2,368	3,603 2,217	7,393 4,585	616 383	7,248 4,296	591 176	4,666 1,862	6,133 3,260	145 289	110 206	84·61 75·88	76·55 71·28	... ...	... ...	... ...	... ...	... ...
	Total of Circle ...	553,896	196	24	6,158	5,820	11,978	499	11,544	767	6,528	9,393	434	316	81·36	73·35	17	10,009	17	1,071	1·9
	Total of District ...	1,916,983	481	41	14,745	14,395	29,140	710	28,636	1,161	12,575	25,717	504	386	89·80	76·58	13	24,848	12	4,681	2
	Nilgiri District.																				
21	Permanent Vaccinators ...	36,461	36	2	1,277	1,057	2,334	1,167	2,312	139	1,356	2,122	22	16	91·78	72·72	...	...	...	...	...
	Total of District ...	36,461	36	2	1,277	1,057	2,334	1,167	2,312	139	1,356	2,122	22	16	91·78	72·72	58	1,828	50	71	1·94
	Coimbatore District.																				
22	North Coimbatore Circle— Permanent Vaccinators ... Temporary do. ...	795,610 ...	234 ...	15 2	11,111 1,640	9,820 2,115	20,931 3,755	1,395 1,877	20,843 3,755	2,354 226	11,320 1,110	19,551 3,445	88 ...	77 ...	93·80 91·74	87·5 ...	... ...	... ...	... ...	... ...	... ...
	Total of Circle ...	795,610	234	17	12,751	11,935	24,686	1,452	24,598	2,580	12,430	22,996	88	77	93·48	87·5	29	15,425	19	881	1

Digitized by Google

A—VACCINE DEPARTMENT.

STATEMENT No. I *showing Particulars of Vaccination in the Madras Presidency during the Calendar Year* 1878—(Continued).

Number.	Circles and Districts.	Population of District or Circle according to Census of 1871.	Average Population per Square Mile.	Average Number of Vaccinators employed throughout the Season.	Total Number of Persons vaccinated.			Average Number of Persons vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully vaccinated per 1,000 of Population.	Average Annual Number of Persons successfully vaccinated during previous 5 Years.		Average Annual Number of Deaths from Small-pox during previous 5 Years.	
									Total.	Successful. Under 1 Year.	Successful. Over 1 and under 6 Years.	Successful. Total of all Ages.	Total.	Successful.	Primary.	Re-vaccination.		Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
					Males.	Females.	Total.														
23	South Coimbatore Circle—																				
	Permanent Vaccinators ...	922,156	321	14	9,640	9,156	18,796	1,348	18,792	2,466	10,502	17,811	4	4	94·77	100·	...	...	...	...	...
	Temporary do. ...	...	...	2	1,380	1,289	2,669	1,334	2,669	611	1,283	2,572	...	...	96·36	...	...	...	...	...	...
	Total of Circle ...	922,156	321	16	11,020	10,445	21,465	1,341	21,461	3,077	11,785	20,383	4	4	94·97	100·	22	27,740	30	701	·7
	Total of District ...	1,717,766	555	33	23,771	22,380	46,151	1,398	45,059	5,657	24,215	43,879	92	81	94·18	88·04	25	48,165	25	1,650	·95
24	*Malabar District.*																				
	Permanent Vaccinators ...	2,188,933	344	11	9,360	2,658	12,018	1,092	12,018	80	1,929	10,575	...	...	88·02	...	...	...	...	...	...
	Temporary do. ...	...	...	5	1,405	681	2,086	417	2,086	...	537	1,801	...	...	86·33	...	...	...	...	...	...
	Private do. ...	...	...	1	27	5	32	32	32	...	15	26	...	...	81·25	...	...	...	...	...	...
	Total of District ...	2,188,933	344	17	10,792	3,339	14,131	831	14,131	80	2,481	12,402	...	...	87·76	...	5	9,795	40	6,517	3·04
25	*South Canara District.*																				
	Permanent Vaccinators ...	888,650	202	25	7,659	5,455	13,114	525	12,791	290	2,153	11,141	323	212	87·10	65·63	...	...	...	...	...
	Hospital Assistant as Vaccinator in the Amindivi Islands.	...	...	...	51	40	91	91	91	13	25	85	...	...	94·28	...	...	...	...	...	...
	Total of District ...	888,650	202	25	7,710	5,495	13,205	528	12,882	303	2,178	11,226	323	212	87·14	65·63	12	20,452	23	1,702	1·9

Digitized by Google

	Nellore District.																				
26	Nellore Circle—																				
	Permanent Vaccinators ...	703,867	180	15	3,684	2,801	6,485	432	6,369	176	2,382	5,795	116	94	90·98	81·03	...	...	...	...	...
	Zemindari do. ...	...	...	2	255	166	421	210	420	11	142	274	1	1	65·23	100·	...	...	...	...	...
	Total of Circle ...	703,867	180	17	3,939	2,967	6,906	406	6,789	187	2,524	6,069	117	95	80·55	71·19	8	15,238	21	884	1
27	Ongole Circle—																				
	Permanent Vaccinators ...	643,022	197	21	3,939	3,512	7,451	355	7,451	312	3,174	6,701	...	...	89·93	...	...	...	...	...	...
	Temporary do. ...	...	...	2	195	166	361	180	361	29	121	252	...	...	69·80	...	...	...	...	...	...
	Private do. ...	...	...	1	86	42	128	128	128	40	10	128	...	...	100·	...	...	...	...	...	...
	Total of Circle ...	643,022	197	24	4,220	3,720	7,940	380	7,940	381	3,305	7,061	...	...	89·28	...	11	8,943	13	430	·66
	Total of District ...	1,346,889	377	41	8,159	6,687	14,846	362	14,729	568	5,829	13,150	117	95	89·27	71·19	9	24,181	17	1,369	1
	Kistna District.																				
28	Masulipatam Circle—																				
	Permanent Vaccinators ...	738,047	202	16	7,297	6,330	13,627	852	12,813	1,041	4,842	10,984	814	560	85·72	68·79	...	...	...	...	...
	Temporary do. ...	...	...	7	615	429	1,044	149	995	48	358	778	49	22	78·19	44·89	...	...	...	...	...
	Total of Circle ...	738,047	202	23	7,912	6,759	14,671	681	13,808	1,089	5,200	11,762	863	582	85·11	67·43	16	8,685	11	635	·86
29	Guntoor Circle—																				
	Permanent Vaccinators ...	660,106	159	12	5,227	4,697	9,924	827	9,924	809	4,564	9,059	...	...	91·28	...	13	...	...	...	...
	Total of Circle ...	660,106	159	12	5,227	4,697	9,924	827	9,924	809	4,564	9,059	...	...	91·28	...	13	7,541	11	664	·1
	Total of District ...	1,398,153	361	35	13,139	11,456	24,595	702	23,732	1,898	9,764	20,821	863	582	87·73	67·43	15	16,226	10	1,286	·91
	Godavari District.																				
30	Cocanada Circle—																				
	Permanent Vaccinators ...	834,948	193	17	10,344	6,722	17,066	1,004	16,941	783	6,695	15,703	125	123	92·69	98·4	...	...	...	...	...
	Temporary do. ...	...	...	2	628	403	1,031	515	1,031	3	209	994	...	...	96·41	...	...	...	...	...	...
	Zemindari do. ...	...	...	2	1,095	885	1,980	990	1,980	80	966	1,819	...	...	91·36	...	...	...	...	...	...
	Total of Circle ...	834,948	193	21	12,067	8,010	20,077	956	19,952	856	7,870	18,516	125	123	82·50	98·4	22	16,835	20	604	·72
31	Ellore Circle—																				
	Permanent Vaccinators ...	694,927	216	13	3,787	3,249	7,036	541	7,036	537	3,022	6,385	...	...	90·74	...	...	...	...	...	...
	Temporary do. ...	...	...	6	569	405	974	162	974	15	382	750	...	...	77·	...	...	...	...	...	...
	Total of Circle ...	694,927	216	19	4,356	3,654	8,010	421	8,010	552	3,404	7,135	...	...	89·07	...	10	3,771	5	497	·71
	Total of District ...	1,529,875	409	40	16,423	11,664	28,087	702	27,962	1,418	11,274	25,651	125	123	91·73	98·4	16	20,606	13	1,107	·72

Digitized by Google

A—VACCINE DEPARTMENT.

STATEMENT No. I *showing Particulars of Vaccination in the Madras Presidency during the Calendar Year* 1878—(Continued).

Number.	Circles and Districts.	Population of District or Circle according to Census of 1871.	Average Population per Square Mile.	Average Number of Vaccinators employed throughout the Season.	Total Number of Persons vaccinated.			Average Number of Persons vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully vaccinated per 1,000 of Population.	Average Annual Number of Persons successfully vaccinated during previous 5 Years.		Average Annual Number of Deaths from Small-pox during previous 5 Years.	
					Males.	Females.	Total.		Total.	Successful. Under 1 Year.	Successful. Over 1 and under 6 Years.	Successful. Total of all Ages.	Total.	Successful.	Primary.	Re-vaccination.		Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Visagapatam District.																				
32	Vizagapatam Circle—																				
	Permanent Vaccinators ...	836,828	713	19	5,205	4,694	9,899	521	9,892	647	5,612	9,742	7	7	98·48	...	...	...	...	...	...
	Temporary do. ...	...	...	1	212	218	430	430	430	29	261	430	...	...	100·	...	...	...	...	...	...
	Conservancy Establishment.	...	...	...	23	21	44	44	44	...	16	44	...	...	100·	...	...	...	..	...	...
	Total of Circle ...	836,828	713	20	5,440	4,933	10,373	518	10,366	676	5,889	10,216	7	7	98·55	100·	12	9,657	11	120	·14
33	Vizianagram Circle—																				
	Permanent Vaccinators ...	937,967	1,076	18	6,298	6,237	12,535	696	12,466	706	8,687	12,238	69	63	98·17	91·30	13	...	...	...	...
	Total of Circle ...	937,967	1,076	18	6,298	6,237	12,535	696	12,466	706	8,687	12,238	69	63	98·17	91·30	13	11,737	12	551	·58
34	Jeypore Hill Tracts—																				
	Permanent Vaccinators ...	314,498	37	6	672	423	1,095	183	1,095	27	645	890	...	...	81·27	...	...	...	...	...	...
	Zemindari do. ...	...	...	8	832	627	1,459	182	1,459	35	862	1,217	...	...	83·41	...	...	...	...	...	...
	Total of Hill Tracts ...	314,498	37	14	1,504	1,050	2,554	182	2,554	62	1,507	2,107	...	...	82·48	...	6	1,313	4	...	...
	Total of District ...	2,089,293	1,826	52	13,242	12,220	25,462	489	25,386	1,444	16,082	24,561	76	70	96·74	92·10	11	22,707	10	663	·23
	Ganjam District.																				
35	Chetterpore Circle—																				
	Permanent Vaccinators ...	784,856	254	25	5,044	3,466	8,510	340	8,510	110	3,925	7,753	...	...	91·10	...	9	...	...	...	...
	Total of Circle ...	784,856	254	25	5,044	3,466	8,510	340	8,510	110	3,925	7,753	...	...	91·10	...	9	3,759	4	1,522	1·9

Digitized by Google

36	Chicacole Circle— Permanent Vaccinators ...	566,863	477	10	1,898	1,801	3,699	370	3,699	95	2,092	3,061	...	...	83·29	...	5	...	...	...	...
	Total of Circle ...	566,863	477	10	1,898	1,801	3,699	370	3,699	95	2,092	3,061	...	...	83·29	...	5	3,354	5	118	·2
37	Hill Tracts of Ganjam— Permanent Vaccinators ...	181,112	...	6	1,567	1,382	2,949	492	2,949	205	918	2,812	...	...	95·33	...	21	...	...	...	...
	Total of Circle ...	181,112	...	6	1,567	1,382	2,949	492	2,949	205	618	2,812	...	...	95·35	...	21	3,265	24	...	...
	Total of District ...	1,482,839	731	41	8,509	6,649	15,158	369	15,158	410	6,985	13,646	...	...	90·02	...	9	10,378	7	1,526	1
	Total of Circles and Districts.	...	...	614	227,660	189,211	416,871	679	413,450	34,930	[illegible]	373,091	3,421	2,801	90·28	67·26	...	...	...	...	...
	Medical Subordinates.																				
1	Presidency, Centre and Northern Districts.	...	...	...	6,473	1,685	8,158	...	8,158	241	2,402	3,728	...	...	45·69	...	...	...	...	...	...
2	Southern Division, Malabar and South Canara.	...	...	...	7,024	1,307	8,331	...	8,331	238	4,836	6,157	...	...	73·90	...	...	...	...	...	...
3	Mysore and Ceded Districts...	...	...	...	1,793	352	2,145	...	2,145	183	626	957	...	...	44·61	...	...	...	...	...	...
4	Hyderabad Subsidiary Force..	...	...	...	566	486	1,052	...	1,052	596	297	893	...	...	84·31	...	...	...	...	...	...
5	Nagpore Force	...	...	...	1,073	495	1,568	...	1,568	349	611	1,016	...	...	64·15	...	...	...	...	...	...
6	Pegu Division	...	...	...	108	24	132	...	132	29	24	53	...	...	40·15	...	...	...	...	...	...
	Total ...	...	...	...	17,037	4,849	21,886	...	21,886	1,636	8,796	12,804	...	...	59·87	...	...	...	...	...	...
	Municipalities.																				
1	Adoni	22,723	...	1	332	254	586	586	586	189	252	515	...	...	87·88	...	22	946	41	19	·8
2	Anantapur	4,918	...	1	17	14	31	31	31	16	14	30	...	...	96·8	...	·0006	256	52	1	·2
3	Anakapalle	13,044	...	1	82	50	132	132	119	5	113	118	13	9	99·16	69·23	9	...	...	...	...
4	Bellary	51,766	...	3	696	663	1,359	458	1,359	425	446	1,024	...	...	95·34	...	19	1,256	24	48	·92
5	Berhampore	21,670	...	1	203	201	404	404	404	15	194	329	...	...	81·48	...	15	162	7	14	·6
6	Bimlipatam	8,744	...	1	221	221	442	442	438	10	198	400	4	4	91·32	110.	46	354	40	9	1·02
7	Calicut	47,962	...	3	1,226	327	1,553	517	1,553	48	309	1,258	...	...	81·	...	26	1,168	24	163	3
8	Cannanore	31,358	...	1	778	492	1,270	1,270	1,269	104	595	1,036	1	1	84·63	100·	33	7,669	244	65	2·07
9	Caroor	9,378	...	1	122	150	272	272	272	27	208	255	...	...	93·75	...	37	212	22	5	·5
10	Chicacole	15,587	...	1	206	107	313	313	312	12	76	248	1	1	79·50	100·	17	117	7	9	·5
11	Chilambaram	15,519	...	1	271	229	500	500	500	21	318	461	...	...	92·20	...	29	387	24	18	·8
12	Cochin	13,840	...	3	938	621	1,559	519	1,559	79	561	1,015	...	...	65·10	...	73	4,372	315	115	8
13	Cocanada	17,889	...	2	1,153	879	2,032	1,016	2,016	128	721	1,558	16	9	77·28	56·25	87	653	36	13	·7
14	Coimbatore	35,310	...	1	603	574	1,177	1,177	1,177	575	386	1,066	...	...	90·56	...	30	1,350	38	58	1·6
15	Combaconum	44,444	...	1	494	401	895	895	878	177	415	224	17	3	82·46	17·64	16	1,096	24	107	2·3
16	Conjeveram	37,327	...	1	576	524	1,100	1,100	1,097	163	545	1,024	3	3	93·34	100·	27	807	21	83	2·2
17	Coonoor	3,058	...	1	382	265	647	647	647	150	229	579	...	...	89·47	...	189	529	172	7	2·2
18	Cuddalore	40,290	...	1	562	680	1,242	1,242	1,242	28	606	1,067	...	...	87·51	...	26	1,105	27	45	1·11
19	Cuddapah	16,275	...	1	189	42	231	231	231	5	65	171	...	...	74·02	...	10	287	17	15	·9
20	Dindigul	12,865	...	1	750	668	1,418	1,418	1,418	162	796	1,335	...	...	94·14	...	108	2,491	193	10	·7
21	Ellore	25,487	...	1	468	399	867	867	801	16	371	635	66	52	79·27	78·	27	543	21	34	1·3

Digitized by Google

A—VACCINE DEPARTMENT.

STATEMENT No. I *showing Particulars of Vaccination in the Madras Presidency during the Calendar Year* 1878—(Continued).

Number.	Municipalities.	Population of District or Circle according to Census of 1871.	Average Population per Square Mile.	Average Number of Vaccinators employed throughout the Season.	Total Number of Persons vaccinated.			Average Number of Persons vaccinated by each Vaccinator.	Primary Vaccination. Total.	Primary Vaccination. Successful. Under 1 Year.	Primary Vaccination. Successful. Over 1 and under 6 Years.	Primary Vaccination. Successful. Total of all Ages.	Re-vaccination. Total.	Re-vaccination. Successful.	Percentage of Successful Cases. Primary.	Percentage of Successful Cases. Re-vaccination.	Persons successfully vaccinated per 1,000 of Population.	Average Annual Number of Persons successfully vaccinated during previous 5 Years. Number.	Average Annual Number of Persons successfully vaccinated during previous 5 Years. Ratio per 1,000.	Average Annual Number of Deaths from Small-pox during previous 5 Years. Number.	Average Annual Number of Deaths from Small-pox during previous 5 Years. Ratio per 1,000.
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Municipalities—(Continued).				Males.	Females.	Total.														
22	Erode	10,201	...	1	161	138	299	299	299	26	198	270	...	...	90·30	...	26	191	18	39	3·8
23	Gooty	6,730	No Vaccinator was employed in this Municipality.																		
24	Guntoor	18,033	...	1	340	308	648	648	647	39	218	405	1	1	62·59	100·	22	3,570	198	25	1·3
25	Kurnool	25,579	...	1	224	98	322	322	268	23	85	243	54	16	90·67	29·62	10	812	12	73	2·8
26	Madras	397,552	14,724	16	22,943	16,433	39,376	2,461	38,020	2,051	5,087	19,642	1,356	448	51·68	78·73	50	3,126	78	1,837	·6
27	Madura	51,987	...	2	1,262	816	2,570	1,285	2,078	775	727	1,763	492	399	84·84	81·09	37	2,504	47	112	2·15
28	Mannargudi	17,703	...	1	422	322	744	744	744	85	261	708	...	...	95·16	...	39	449	25	34	1·94
29	Mangalore	29,712	...	1	721	425	1,146	1,146	1,019	230	513	991	127	24	97·25	11·02	34	2,856	96	195	6
30	Masulipatam	36,188	...	1	783	748	1,531	1,531	1,531	116	732	1,496	...	...	79·71	...	41	916	25	9	·24
31	Mayavaram	21,165	...	1	236	240	476	476	467	158	219	443	9	6	94·86	66·66	20	620	29	26	1·22
32	Mettapolliem		No Vaccinator was employed in this Municipality.																		
33	Negapatam	48,525	...	2	707	692	1,446	723	1,399	236	661	1,220	47	26	87·20	55·31	25	630	12	100	2·06
34	Nellore	29,922	...	1	442	368	810	810	732	33	334	710	78	54	96·99	69·93	25	1,382	46	51	1·6
35	Ongole	7,392	...	1	90	74	164	164	164	6	54	103	...	...	62·80	...	13	...	...	...	...
36	Ootacamund	9,982	...	1	407	444	865	865	745	167	444	693	120	92	93·02	68·33	85	756	76	29	2·8
37	Palamcottah	17,945	...	1	222	181	403	403	375	48	176	319	28	19	85·06	60·71	18	415	23	34	1·8
38	Palghat	30,752	...	1	440	576	1,016	1,016	1,016	5	510	937	...	...	92·22	...	34	6,288	204	51	1·6
39	Rajahmundry	19,738	...	1	527	318	845	845	845	52	450	756	...	...	89·46	...	38	668	34	14	·7
40	Salem	50,012	...	3	596	440	1,036	518	1,033	278	504	951	3	2	92·05	66·66	19	1,361	27	131	2·5
41	Srirangam	18,655	...	2	191	203	394	394	394	59	150	290	...	...	90·06	...	15	493	26	43	2·3
42	Tanjore	52,175	...	2	617	439	1,056	528	1,056	132	590	1,016	...	...	96·21	...	19	1,090	20	92	1·7
43	Tellicherry	20,504	...	1	753	242	995	995	975	10	195	640	20	12	65·64	60·	31	5,800	248	80	3·9
44	Tinnevelly	21,044	...	2	83	69	152	76	152	19	72	124	...	...	81·57	...	5	490	23	36	1·7
45	Trichinopoly	76,530	...	6	1,073	899	1,972	328	1,963	395	1,036	1,758	9	9	89·55	100·	23	2,524	23	146	1·9
46	Tuticorin	10,565	...	1	526	529	1,055	1,055	1,037	64	376	787	18	15	65·28	83·	75	785	74	57	5·4
47	Vellore	38,022	...	2	1,986	1,613	3,599	1,799	3,599	390	470	3,472	...	...	96·44	...	91	5,261	138	29	·7
48	Vizagapatam	32,191	...	1	604	346	950	950	950	28	220	880	...	...	92·63	...	27	600	18	51	1·5

Digitized by Google

49	Vizianagram	20,169	...	1	350	388	738	738	722	42	267	716	16	6	96·16	37·50	35	636	31	7	3
50	Wallajapet	12,103	...	1	230	238	468	468	468	13	248	342	...	...	73·07	...	28	203	16	20	1·6
	Total of Municipalities ...	1,620,480	...	83	47,205	35,348	83,106	1,001	80,607	7,835	22,215	56,543	2,499	1,209	70·25	48·38	35	36,183	21	2,963	1·82
	Grand Total ...	31,597,872*	226·2*	697	291,902	228,908	521,363	748	515,443	44,401	215,010	442,438	5,920	3,510	85·83	59·29	14	359,375	11	47,338	1·49

N.B.—Dispensary vaccination is excluded from this statement and is given separately in Statement No. III.

* Figures taken from the Census Report of 1871. In finding the average in Column No. 7 the total work of Medical Subordinate is excluded.

The sex of 553 re-vaccination cases performed in municipal towns is unknown.

A—VACCINE

Statement No. II *showing the Cost of the Department in the*

Number.	Circles and Districts.	Establishment.							Expen		
		Inspector of Vaccination and Deputy Sanitary Commissioner.	First-Class Deputy Inspectors.	Second-Class Deputy Inspectors.	Vaccinators. First-Class.	Vaccinators. Second-Class.	Probationers.	Peons.	Pay of Establishment.	Travelling Allowance.	Contingencies.
1	2	3	4	5	6	7	8	9	10	11	12
									RS. A. P.	RS. A. P.	RS. A. P.
	Madras Presidency	1	1	...	...	...	...	...	13,241 8 0	1,306 2 0	201 4 6
1	*Chingleput District.*										
	Permanent Vaccinators ...	...	1	...	4	9	...	...	2,727 9 6	81 0 0	193 8 2
	Temporary do. ...	...	...	...	...	3	...	...	113 10 10	...	...
	Total of District ...	...	1	...	4	12	...	...	2,841 4 4	81 0 0	193 8 2
	North Arcot District.										
2	Chittoor Circle— Permanent Vaccinators ...	...	1	...	8	9	4	1	3,604 3 2	133 12 0	131 6 6
	Total of Circle ...	...	1	...	8	9	4	1	3,604 3 2	133 12 0	131 6 6
3	Vellore Circle— Permanent Vaccinators ...	...	1	...	5	3	2	1	2,093 9 9	366 13 0	65 15 1
	Temporary do. ...	...	...	...	...	5	...	...	456 0 9	...	152 1 6
	Zemindari do. ...	...	...	...	...	1	...	...	120 0 0	...	...
	Total of Circle ...	...	1	...	5	9	2	1	2,669 10 6	366 13 0	218 0 7
	Total of District ...	...	2	...	13	18	6	2	6,273 13 8	500 9 0	349 7 1
	South Arcot District.										
4	Cuddalore Circle— Permanent Vaccinators ...	...	1	...	5	8	...	1	2,847 8 2	...	87 11 6
	Temporary do. ...	...	...	...	...	2	..	...	144 2 6	...	...
	Total of Circle ...	...	1	...	5	10	...	1	2,991 10 8	...	87 11 6
5	Virudachalam Circle— Permanent Vaccinators ...	...	...	1	3	3	2	1	1,564 10 6	13 5 0	24 10 6
	Total of Circle ...	...	...	1	3	3	2	1	1,564 10 6	13 5 0	24 10 6
	Total of District ...	...	1	1	8	13	2	2	4,556 5 2	13 5 0	112 6 0
6	*Trichinopoly District.*										
	Permanent Vaccinators ...	...	1	...	5	11	3	1	3,162 15 8	235 2 0	171 4 0
	Total of District ...	...	1	...	5	11	3	1	3,162 15 8	235 2 0	171 4 0
	Tanjore District.										
7	Tanjore Circle— Permanent Vaccinators ...	...	1	...	4	12	2	1	3,102 2 3	195 14 0	112 7 0
	Total of Circle ...	...	1	...	4	12	2	1	3,102 2 3	195 14 0	112 7 0
8	Negapatam Circle— Permanent Vaccinators ...	...	1	...	5	6	...	1	2,504 2 5	11 2 0	568 8 6
	Total of Circle ...	...	1	...	5	6	...	1	2,504 2 5	11 2 0	568 8 6
	Total of District ...	...	2	...	9	18	2	2	5,606 4 8	207 0 0	680 15 6

Digitized by Google

DEPARTMENT.

Madras Presidency during the Calendar Year 1878.

diture.	Paid from							
Total Cost.	Imperial Funds.	Provincial Funds.	Local Funds.	Municipalities.	Native States, Zemindars or private Funds.	Total.	Number of all successful Vaccinations and Re-vaccinations.	Average Cost of each successful Case.
13	14	15	16	17	18	19	20	21
RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.
14,748 14 6	...	14,748 14 6	...	...	...	14,748 14 6	...	...
3,002 1 8	...	...	3,002 1 8	...	...	3,002 1 8	7,848	0 6 1
113 10 10	...	...	113 10 10	...	...	113 10 10	456	0 3 11
3,115 12 6	...	...	3,115 12 6	...	...	3,115 12 6	8,304	0 6 0
3,869 5 8	...	...	3,869 5 8	...	...	3,869 5 8	17,178	0 3 7
3,869 5 8	...	...	3,869 5 8	...	...	3,869 5 8	17,178	0 3 7
2,526 5 10	...	...	2,526 5 10	...	...	2,526 5 10	6,755	0 5 11
608 2 3	608 2 3	...	...	...	...	608 2 3	6,198	0 1 6
120 0 0	...	...	...	...	120 0 0	120 0 0	1,633	0 1 3
3,254 8 1	608 2 3	..	2,526 5 10	...	120 0 0	3,254 8 1	14,581	0 3 6
7,123 13 9	608 2 3	...	6,395 11 6	...	120 0 0	7,123 13 9	31,759	0 3 7
2,935 3 8	...	...	2,935 3 8	...	...	2,935 3 8	9,325	0 5 0
144 2 6	...	...	144 2 6	...	...	144 2 6	1,099	0 2 1
3,079 6 2	...	...	3,079 6 2	...	...	3,079 6 2	10,424	0 4 8
1,602 10 0	...	...	1,602 10 0	...	...	1,602 10 0	3,962	0 6 5
1,602 10 0	...	...	1,602 10 0	...	...	1,602 10 3	3,962	0 6 5
4,682 0 2	...	...	4,682 0 2	...	...	4,682 0 2	14,386	0 5 2
3,569 5 8	...	...	3,569 5 8	...	...	3,569 5 8	13,281	0 4 3
3,569 5 8	...	...	3,569 5 8	...	...	3,569 5 8	13,281	0 4 3
3,410 7 3	...	...	3,410 7 3	...	...	3,410 7 3	14,367	0 3 10
3,410 7 3	...	...	3,410 7 3	...	..	3,410 7 3	14,367	0 3 10
3,083 12 11	...	...	3,083 12 11	...	...	3,083 12 11	16,330	0 3 0
3,083 12 11	...	...	3,083 12 11	...	...	3,083 12 11	16,330	0 3 0
6,494 4 2	..	...	6,494 4 2	...	...	6,494 4 2	30,697	0 3 4

Digitized by Google

A—VACCINE

STATEMENT No. II *showing the Cost of the Department in the*

Number.	Circles and Districts.	Establishment. Inspector of Vaccination and Deputy Sanitary Commissioner.	First-Class Deputy Inspectors.	Second-Class Deputy Inspectors.	Vaccinators. First-Class.	Vaccinators. Second-Class.	Probationers.	Peons.	Expen… Pay of Establishment.	Travelling Allowance.	Contingencies.
1	2	3	4	5	6	7	8	9	10	11	12
	Madura District.										
									RS. A. P.	RS. A. P.	RS. A. P.
9	Madura Circle— Permanent Vaccinators ...	...	1	...	12	20	2	1	5,782 2 0	7 5 0	128 15 6
	Total of Circle ...	...	1	...	12	20	2	1	5,782 2 0	7 5 0	128 15 6
10	Dindigul Circle— Permanent Vaccinators ...	...	...	1	6	9	3	...	2,921 8 6	234 8 2	64 0 9
	Hospital Assistant as Vaccinator in the Pulney Hills.	...	...	...	...	...	...	...	...	43 0 0	...
	Total of Circle ...	...	...	1	6	9	3	...	2,921 8 6	277 8 2	64 0 9
	Total of District ...	...	1	1	18	29	5	1	8,703 10 6	284 13 2	193 0 3
	Tinnevelly District.										
11	Tinnevelly Circle— Permanent Vaccinators ...	...	1	...	6	10	12	...	3,777 3 6	...	190 9 11
	Total of Circle ...	...	1	...	6	10	12	...	3,777 3 6	...	190 9 11
12	Shermadevi Circle— Permanent Vaccinators ...	...	...	1	3	4	1	1	1,658 10 2	79 0 0	86 5 0
	Total of Circle ...	...	...	1	3	4	1	1	1,658 10 2	79 0 0	86 5 0
	Total of District ...	...	1	1	9	14	13	1	5,435 13 8	79 0 0	276 14 11
	Cuddapah District.										
13	Cuddapah Circle— Permanent Vaccinators ...	...	1	...	7	7	3	1	3,149 5 10	...	81 6 6
	Total of Circle ...	...	1	...	7	7	3	1	3,149 5 10	...	81 6 6
14	Madhanapalle Circle— Permanent Vaccinators ...	...	1	...	4	8	4	1	2,698 15 7	...	...
	Total of Circle ...	...	1	...	4	8	4	1	2,698 15 7	...	...
	Total of District ...	...	2	...	11	15	7	2	5,848 5 5	...	81 6 6
15	*Kurnool District.*										
	Permanent Vaccinators ...	...	1	...	4	7	2	1	2,477 12 9	20 12 0	61 10 6
	Total of District ...	...	1	...	4	7	2	1	2,477 12 9	20 12 0	61 10 6
	Bellary District.										
16	Bellary Circle— Permanent Vaccinators ...	...	1	...	2	11	...	...	2,476 3 9	353 4 0	143 3 3
	Total of Circle ...	...	1	...	2	11	...	...	2,476 3 9	353 4 0	143 3 3
17	Gooty Circle— Permanent Vaccinators ...	...	...	1	4	2	...	...	1,491 15 3	518 0 0	84 2 6
	Total of Circle ...	...	...	1	4	2	...	...	1,491 15 3	518 0 0	84 2 6

Digitized by Google

DEPARTMENT.

Madras Presidency during the Calendar Year 1878—(Continued).

...diture.	Paid from							
Total Cost.	Imperial Funds.	Provincial Funds.	Local Funds.	Municipalities.	Native States, Zemindars or private Funds.	Total.	Number of all successful Vaccinations and Re-vaccinations.	Average Cost of each successful Case.
13	14	15	16	17	18	19	20	21
RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.
5,918 6 6	...	...	5,918 6 6	...	...	5,918 6 6	24,498	0 3 10
5,918 6 6	...	...	5,918 6 6	...	...	5,918 6 6	24,498	0 3 10
3,220 1 5	...	...	3,220 1 5	...	...	3,220 1 5	10,930	0 4 9
43 0 0	...	...	43 0 0	...	...	43 0 0	74	0 9 4
3,263 1 5	...	...	3,263 1 5	...	...	3,265 1 5	11,004	0 4 9
9,181 7 11	...	...	9,181 7 11	...	...	9,181 7 11	35,502	0 4 2
3,967 13 5	...	...	3,967 13 5	...	...	3,967 13 5	20,423	0 3 1
3,967 13 5	...	...	3,967 13 5	...	...	3,967 13 5	20,423	0 3 1
1,823 15 2	...	...	1,823 15 2	...	...	1,823 15 2	5,722	0 5 1
1,823 15 2	...	...	1,823 15 2	...	...	1,823 15 2	5,722	0 5 1
5,791 12 7	...	...	5,791 12 7	...	...	5,791 12 7	26,145	0 4 2
3,230 12 4	...	...	3,230 12 4	...	...	3,230 12 4	4,700	0 10 11
3,230 12 4	...	...	3,230 12 4	...	...	3,230 12 4	4,700	0 10 11
2,698 15 7	...	...	2,698 15 7	...	...	2,698 15 7	2,891	0 14 11
2,698 15 7	...	...	2,698 15 7	...	...	2,698 15 7	2,891	0 14 11
5,929 11 11	...	...	5.929 11 11	...	...	5,929 11 11	7,591	0 12 5
2,560 3 3	...	...	2,560 3 3	...	..	2,560 3 3	2,832	0 14 5
2,560 3 3	...	...	2,560 3 3	...	...	2,560 3 3	2,832	0 14 5
2,972 11 0	...	...	2,972 11 0	...	...	2,972 11 0	4,963	0 9 6
2,972 11 0	...	...	2,972 11 0	...	...	2,972 11 0	4,963	0 9 6
2,094 1 9	...	...	2,094 1 9	...	...	2,094 1 9	4,184	0 8 0
2,094 1 9	...	...	2,094 1 9	...	...	2,094 1 9	4,184	0 8 0

Digitized by Google

A—VACCINE

STATEMENT No. II *showing the Cost of the Department in the*

Number.	Circles and Districts.	Establishment. Inspector of Vaccination and Deputy Sanitary Commissioner.	First-Class Deputy Inspectors.	Second-Class Deputy Inspectors.	Vaccinators. First-Class.	Vaccinators. Second-Class.	Probationers.	Peons.	Expen[diture] Pay of Establishment.	Travelling Allowance.	Contingencies.
1	2	3	4	5	6	7	8	9	10	11	12
									RS. A. P.	RS. A. P.	RS. A. P.
18	Penukonda Circle—										
	Permanent Vaccinators ...	...	...	1	3	1	...	...	1,103 14 3	...	12 10 0
	Total of Circle ...	...	...	1	3	1	...	...	1,103 14 3	...	12 10 0
	Total of District ...	...	1	2	9	14	...	...	5,072 1 2	871 4 0	239 15 9
	Salem District.										
19	Salem Circle—										
	Permanent Vaccinators ...	...	1	...	6	11	...	1	3,433 3 4	176 12 0	47 11 6
	Total of Circle ...	...	1	...	6	11	...	1	3,433 3 4	176 12 0	47 11 6
20	Oosoor Circle—										
	Permanent Vaccinators ...	...	...	1	3	6	3	1	2,032 15 2	94 8 0	93 6 11
	Temporary do. ...	...	...	...	...	12	...	...	688 12 11	...	...
	Total of Circle ...	...	...	1	3	18	3	1	2,721 12 1	94 8 0	93 6 11
	Total of District ...	...	1	1	9	29	3	2	6,154 15 5	271 4 0	141 2 5
21	*Nilgiri District.*										
	Permanent Vaccinators ...	...	...	...	2	...	...	...	552 0 0	...	81 0 9
	Total of District ...	...	...	...	2	...	...	...	552 0 0	...	81 0 9
	Coimbatore District.										
22	North Coimbatore Circle—										
	Permanent Vaccinators ...	...	1	...	2	4	10	1	2,401 14 2	411 4 0	79 12 0
	Temporary do. ...	...	...	...	...	2	...	...	206 10 7	...	...
	Total of Circle ...	...	1	...	2	6	10	1	2,608 8 9	411 4 0	79 12 0
23	South Coimbatore Circle—										
	Permanent Vaccinators ...	...	1	...	2	3	9	1	2,369 11 0	308 0 0	35 7 0
	Temporary do. ...	...	...	...	...	2	...	...	240 0 0	...	...
	Total of Circle ...	...	1	...	2	5	9	1	2,609 11 0	308 0 0	35 7 0
	Total of District ...	...	2	...	4	11	19	2	5,770 3 9	719 4 0	196 3 9
24	*Malabar District.*										
	Permanent Vaccinators ...	...	1	...	4	7	...	...	2,527 7 0	136 0 0	90 7 0
	Temporary do. ...	...	...	...	...	5	...	...	170 10 8	...	...
	Total of District ...	...	1	...	4	12	...	...	2,698 1 8	136 0 0	90 7 0
25	*South Canara District.*										
	Permanent Vaccinators ...	...	1	...	7	9	9	1	3,035 14 8	199 0 0	51 5 10
	Hospital Assistant as Vaccinator in the Amindivi Islands.	...	...	...	...	...	...	...	70 0 0	...	...
	Total of District ...	...	1	...	7	9	9	1	3,105 14 8	199 0 0	51 5 10

Digitized by Google

DEPARTMENT.

Madras Presidency during the Calendar Year 1878—(Continued).

...diture.	Paid from							
Total Cost.	Imperial Funds.	Provincial Funds.	Local Funds.	Municipalities.	Native States, Zemindars or private Funds.	Total.	Number of all successful Vaccinations and Re-vaccinations.	Average Cost of each successful Case.
13	14	15	16	17	18	19	20	21
RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.
1,116 8 3	...	...	1,116 8 3	..	...	1,116 8 3	1,488	0 11 11
1,116 8 3	...	...	1,116 8 3	...	...	1,116 8 3	1,488	0 11 11
6,183 5 0	...	...	6,183 5 0	...	...	6,183 5 0	10,655	0 9 3
3,657 10 10	...	...	3,657 10 10	...	...	3,657 10 10	16,394	0 3 6
3,657 10 10	...	...	3,657 10 10	...	...	3,657 10 10	16,394	0 3 6
2,220 14 1	...	...	2,220 14 1	...	...	2,220 14 1	6,243	0 5 8
688 12 11	...	...	688 12 11	...	...	688 12 11	3,466	0 3 2
2,909 11 0	...	...	2,909 11 0	...	...	2,909 11 0	9,709	0 4 10
6,567 5 10	...	...	6,567 5 10	...	...	6,567 5 10	26,103	0 4 0
633 0 9	...	...	633 0 9	...	...	633 0 9	2,138	0 4 9
633 0 9	...	...	633 0 9	...	...	633 0 9	2,138	0 4 9
2,892 14 2	...	...	2,892 14 2	...	...	2,892 14 2	19,628	0 2 4
206 10 7	...	...	206 10 7	...	...	206 10 7	3,445	0 0 11
3,099 8 9	...	...	3,099 8 9	...	...	3,099 8 9	23,073	0 2 2
2,713 2 0	...	...	2,713 2 0	...	...	2,713 2 0	17,815	0 2 5
240 0 0	...	...	240 0 0	...	...	240 0 0	2,572	0 1 6
2,953 2 0	...	...	2,953 2 0	...	...	2,953 2 0	20,387	0 2 3
6,685 11 6	...	...	6,685 11 6	...	...	6,685 11 6	43,460	0 2 4
2,753 14 0	...	...	2,753 14 0	...	...	2,753 14 0	10,575	0 3 9
170 10 8	...	..	170 10 8	...	...	170 10 8	1,801	0 1 6
2,924 8 8	...	...	2,924 8 8	...	...	2,924 8 8	12,376	0 3 9
3,286 4 6	...	...	3,286 4 6	...	...	3,286 4 6	11,353	0 4 7
70 0 0	...	...	70 0 0	...	...	70 0 0	85	0 13 2
3,356 4 6	...	...	3,356 4 6	...	...	3,356 4 6	11,438	0 4 8

Digitized by Google

A—VACCINE

Statement No. II *showing the Cost of the Department in the*

Number.	Circles and Districts.	Establishment.							Expen		
		Inspector of Vaccination and Deputy Sanitary Commissioner.	First-Class Deputy Inspectors.	Second-Class Deputy Inspectors.	Vaccinators. First-Class.	Vaccinators. Second-Class.	Probationers.	Peons.	Pay of Establishment.	Travelling Allowance.	Contingencies.
1	2	3	4	5	6	7	8	9	10	11	12
	Nellore District.								RS. A. P.	RS. A. P.	RS. A. P.
26	Nellore Circle—										
	Permanent Vaccinators ...	...	1	...	4	7	4	1	2,852 8 1	559 1 0	69 12 9
	Zemindari do. ...	...	...	...	...	...	2	...	135 0 0	...	...
	Total of Circle ...	...	1	...	4	7	6	1	2,987 8 1	559 1 0	69 12 9
27	Ongole Circle—										
	Permanent Vaccinators ...	...	1	...	4	9	8	1	3,361 3 8	824 11 0	35 7 6
	Temporary do. ...	...	...	...	...	2	...	...	124 3 1	...	...
	Total of Circle ...	...	1	...	4	11	8	1	3,485 6 9	824 11 0	35 7 6
	Total of District ...	...	2	...	8	18	14	2	6,472 14 10	1,383 12 0	105 4 3
	Kistna District.										
28	Masulipatam Circle—										
	Permanent Vaccinators ...	...	1	...	7	7	2	...	3,128 13 7	352 14 0	117 2 4
	Temporary do. ...	...	...	...	...	7	...	...	210 7 5	45 10 0	...
	Total of Circle ...	...	1	...	7	14	2	...	3,339 5 0	398 8 0	117 2 4
29	Guntoor Circle—										
	Permanent Vaccinators ...	...	1	...	3	9	...	1	2,540 14 6	710 4 0	46 10 6
	Total of Circle ...	...	1	...	3	9	...	1	2,540 14 6	710 4 0	46 10 6
	Total of District ...	...	2	...	10	23	2	1	5,880 3 6	1,108 12 0	163 12 10
	Godavari District.										
30	Cocanada Circle—										
	Permanent Vaccinators ...	...	1	...	6	8	3	1	3,271 10 0	1,139 3 0	1,015 3 1
	Temporary do. ...	...	...	...	...	2	...	...	58 3 2	25 5 0	79 2 0
	Zemindari do. ...	...	...	...	2	...	...	...	378 0 0	45 12 0	70 2 0
	Total of Circle ...	...	1	...	8	10	3	1	3,707 13 2	1,210 4 0	1,164 7 1
31	Ellore Circle—										
	Permanent Vaccinators ...	...	1	...	5	5	2	1	1,631 15 7	35 0 2	79 2 0
	Temporary do. ...	...	...	...	...	6	...	...	197 0 8	11 8 4	...
	Total of Circle ...	...	1	...	5	11	2	1	1,829 0 3	46 8 6	79 2 0
	Total of District ...	...	2	...	13	21	5	2	5,536 13 5	1,256 12 6	1,243 9 1
	Vizagapatam District.										
32	Vizagapatam Circle—										
	Permanent Vaccinators ...	...	1	...	7	9	3	...	3,331 5 5	152 12 0	950 6 6
	Temporary do. ...	...	...	...	...	...	1	...	48 0 0	34 4 0	...
	Total of Circle ...	...	1	...	7	9	4	...	3,379 5 5	187 0 0	950 6 6
33	Vizianagram Circle—										
	Permanent Vaccinators ...	...	...	1	7	11	3	...	3,276 14 6	127 8 0	1,228 15 0
	Total of Circle ...	...	...	1	7	11	3	...	3,276 14 6	127 8 0	1,228 15 0

Digitized by Google

DEPARTMENT.

Madras Presidency during the Calendar Year 1878—(Continued).

...diture.	Paid from							
Total Cost.	Imperial Funds.	Provincial Funds.	Local Funds.	Municipalities.	Native States, Zemindars or private Funds.	Total.	Number of all successful Vaccinations and Re-vaccinations.	Average Cost of each successful Case.
13	14	15	16	17	18	19	20	21
RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.
3,481 5 10	...	...	3,481 5 10	...	...	3,481 5 10	5,889	0 9 5
135 0 0	...	...	...	...	135 0 0	135 0 0	275	0 7 10
3,616 5 10	...	...	3,481 5 10	...	135 0 0	3,616 5 10	6,164	0 9 4
4,221 6 2	...	...	4,221 6 2	...	...	4,221 6 2	6,701	0 10 0
124 3 1	...	...	124 3 1	...	...	124 3 1	252	0 7 10
4,345 9 3	...	...	4,845 9 3	...	...	4,345 9 3	6,953	0 9 11
7,961 15 1	...	...	7,826 15 1	...	135 0 0	7,961 15 1	13,117	0 9 8
3,598 13 11	...	...	3,598 13 11	...	...	3,598 13 1	11,544	0 4 11
256 1 5	...	...	256 1 5	...	...	256 1 5	800	0 5 1
3,854 15 4	...	...	3,854 15 4	...	...	3,854 15 4	12,344	0 4 11
3,297 13 0	...	...	3,297 13 0	...	...	3,297 13 0	9,059	0 5 10
3,297 13 0	...	...	3,297 13 0	...	...	3,297 13 0	9,059	0 5 10
7,152 12 4	...	...	7,152 12 4	...	...	7,152 12 4	21,403	0 5 4
5,426 0 1	...	797 0 0	4,629 0 1	...	...	5,426 0 1	15,829	0 5 5
162 10 2	...	...	162 10 2	...	...	162 10 2	994	0 2 7
493 14 0	...	...	...	...	493 14 0	493 14 0	1,819	0 4 4
6,082 8 3	...	797 0 0	4,791 10 3	...	493 14 0	6,082 8 3	18,642	0 5 2
1,746 1 9	...	...	1,746 1 9	...	...	1,746 1 9	6,385	0 4 4
208 9 0	...	...	208 9 0	...	...	208 9 0	750	0 4 5
1,954 10 9	...	...	1,954 10 9	...	...	1,954 10 9	7,135	0 4 4
8,037 3 0	...	797 0 0	6,746 5 0	...	493 14 0	8,037 3 0	25,777	0 4 11
4,434 7 11	...	...	4,334 7 11	...	...	4,434 7 11	9,749	0 7 3
82 4 0	...	...	88 4 0	...	...	82 4 0	430	0 3 1
4,516 11 11	...	...	4,516 11 11	...	...	4,516 11 11	10,179	0 7 1
4,633 5 6	...	...	4,633 5 6	...	...	4,633 5 6	12,301	0 6 0
4,633 5 6	...	...	4,633 5 6	...	...	4,633 5 6	12,301	0 6 0

Digitized by Google

A—VACCINE

STATEMENT No. II *showing the Cost of the Department in the*

Number.	Circles and Districts.	Establishment.							Expen		
		Inspector of Vaccination and Deputy Sanitary Commissioner.	First-Class Deputy Inspectors.	Second-Class Deputy Inspectors.	Vaccinators. First-Class.	Vaccinators. Second-Class.	Probationers.	Peons.	Pay of Establishment.	Travelling Allowance.	Contingencies.
1	2	3	4	5	6	7	8	9	10	11	12
									RS. A. P.	RS. A. P.	RS. A. P.
34	*Jeypore Hill Tracts.*										
	Permanent Vaccinators ...	...	1	...	...	6	...	...	1,470 12 10	504 0 0	30 15 6
	Zemindari do. ...	...	...	...	...	8	...	...	907 2 2	...	...
	Total of Hill Tracts ...	...	1	...	...	14	...	...	2,377 15 0	504 0 0	30 15 6
	Total of District ...	...	2	1	14	34	7	...	9,034 2 11	818 8 8	2,210 5 0
	Ganjam District.										
35	Chetterpore Circle— Permanent Vaccinators ...	...	1	...	12	10	3	1	3,501 5 9	157 9 0	176 0 6
	Total of Circle ...	...	1	...	12	10	3	1	3,501 5 9	157 9 0	176 0 6
36	Chicacole Circle— Permanent Vaccinators ...	...	1	...	2	8	...	...	2,165 0 0	120 0 0	36 5 0
	Total of Circle ...	...	1	...	2	8	...	...	2,165 0 0	120 0 0	36 5 0
37	Hill Tracts, Ganjam— Permanent Vaccinators ...	...	1	...	...	6	...	...	1,648 4 2	501 8 0	17 3 10
	Total of Hill Tracts ...	...	1	...	...	6	...	...	1,648 4 2	501 8 0	17 3 10
	Total of District ...	...	3	...	14	24	3	1	7,314 9 11	779 1 0	229 9 4
	Total of Circles and Districts.	1	30	7	175	332	102	23	1,15,789 15 2	10,271 4 8	7,074 9 5

Munici

1	Adoni	...	...	...	1	...	...	...	157 11 4	...	11 11 8
2	Anantapur	...	...	...	...	1	...	...	7 0 0	...	...
3	Anakapalle	...	...	...	...	1	...	...	84 6 9	...	7 6 0
4	Bellary	...	...	...	1	2	...	...	453 0 0	...	...
5	Berhampore	...	...	...	...	1	...	...	120 0 0	...	10 3 6
6	Bimlipatam	...	...	...	...	1	...	...	120 0 0	...	26 1 0
7	Calicut	...	...	...	1	2	...	...	341 15 0	...	21 11 0
8	Cannanore	...	...	...	1	...	...	...	240 0 0	...	...
9	Caroor	...	...	...	1	...	...	...	90 0 0	2 10 0	0 0 6
10	Chicacole	...	...	...	...	1	...	...	146 8 0	...	24 6 6
11	Chilambaram	...	...	...	...	1	...	...	120 0 0	...	...
12	Cochin	...	...	...	1	2	...	...	158 0 0	19 13 0	32 9 3
13	Cocanada	...	...	...	1	1	...	...	303 10 0	...	...
14	Coimbatore	...	...	...	1	...	...	...	187 4 4	...	...
15	Combaconum	...	...	...	1	...	...	...	214 0 0	...	41 13 0
16	Conjeveram	...	...	...	1	...	...	...	179 14 0	...	23 0 0
17	Coonoor	...	...	...	1	...	...	...	216 0 0	...	...
18	Cuddalore	...	...	...	...	1	...	...	124 0 0	...	70 12 6
19	Cuddapah	...	...	...	1	...	...	...	101 10 6	...	18 3 10
20	Dindigul	...	...	...	1	...	...	...	180 0 0	...	...
21	Ellore	...	...	...	1	...	...	...	216 0 0	...	7 12 0
22	Erode	...	...	...	1	...	...	...	90 0 0	2 10 0	...
23	Gooty									No Vaccinator	was employed
24	Guntoor	...	...	...	1	...	...	...	179 6 2	...	37 7 6
25	Kurnool	...	...	...	1	...	...	...	166 0 0	...	...
26	Madras	...	1	...	4	12	...	3	3,339 8 0	...	1,567 14 0
27	Madura	...	...	...	1	1	...	...	288 0 0	...	113 11 0
28	Mannargudi	...	...	...	1	...	...	...	195 0 0	...	7 4 0
29	Mangalore	...	...	...	1	...	...	...	181 0 0	...	...
30	Masulipatam	...	...	...	1	...	...	...	183 12 5	...	99 8 0
31	Mayavaram	...	...	...	...	1	...	...	161 0 0	...	...

Digitized by Google

DEPARTMENT.

Madras Presidency during the Calendar Year 1878—(Continued).

diture.	Paid from							
Total Cost.	Imperial Funds.	Provincial Funds.	Local Funds.	Municipalities.	Native States, Zemindars or private Funds.	Total.	Number of all successful Vaccinations and Re-vaccinations.	Average Cost of each successful Case.
13	14	15	16	17	18	19	20	21
RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.
2,005 12 4	...	2,005 12 4	...	...	...	2,005 12 4	890	2 4 0
907 2 2	...	...	...	...	907 2 2	907 2 2	1,217	0 11 11
2,912 14 6	...	2,005 12 4	...	...	907 2 2	2,912 14 6	2,107	1 6 1
12,062 15 11	...	2,005 12 4	9,150 1 5	...	907 2 2	12,062 15 11	24,587	0 7 10
3,834 15 3	...	...	3,834 15 3	...	...	3,834 15 3	7,758	0 7 3
3,834 15 3	...	...	3,834 15 3	...	...	3,834 15 3	7,758	0 7 3
2,321 5 0	...	...	2,321 5 0	...	...	2,321 5 0	3,061	0 12 0
2,321 5 0	...	...	2,321 5 0	...	...	2,321 5 0	3,081	0 12 0
2,167 0 0	...	2,167 0 0	...	...	...	2,167 0 0	2,812	1 4 9
2,167 0 0	...	2,167 0 0	...	...	...	2,167 0 0	2,812	1 4 9
8,323 4 3	...	2,167 0 0	6,156 4 3	...	...	8,323 4 3	13,646	0 2 5
1,33,085 13 3	608 2 3	19,718 10 10	1,11,108 0 0	...	1,656 0 2	1,33,085 13 3	3,75,194	0 5 9
palities.								
169 7 0	...	...	...	169 7 0	...	169 7 0	515	0 5 3
7 0 0	...	...	...	7 0 0	...	7 0 0	30	0 3 8
91 12 0	...	...	...	91 12 9	...	91 12 9	127	0 11 7
453 0 0	...	...	...	453 0 0	...	453 0 0	1,024	0 7 0
130 3 6	...	...	...	130 3 6	...	130 3 6	329	0 6 4
146 1 0	...	...	...	146 1 0	...	146 1 0	404	0 5 9
363 10 0	...	...	...	363 10 0	...	363 10 0	1,258	0 4 7
240 0 0	...	...	...	240 0 0	...	240 0 0	1,037	0 3 8
92 10 6	...	...	...	92 10 6	...	92 10 6	255	0 5 10
170 14 6	...	...	...	170 14 6	...	170 14 6	249	0 10 10
120 0 0	...	...	...	120 0 0	...	120 0 0	461	0 4 1
210 6 3	...	...	...	210 6 3	...	210 6 3	1,015	0 3 3
303 10 0	...	...	...	303 10 0	...	303 10 0	1,567	0 3 1
187 4 4	...	...	...	187 4 4	...	187 4 4	1,066	0 2 9
255 13 0	...	...	...	255 13 0	...	255 13 0	727	0 5 7
202 14 0	...	...	...	202 14 0	...	202 14 0	1,027	0 3 2
216 0 0	...	...	...	216 0 0	...	216 0 0	579	0 5 8
194 12 6	...	...	...	194 12 6	...	194 12 6	1,087	0 2 10
119 14 4	...	...	...	119 14 4	...	119 14 4	171	0 11 2
180 0 0	...	...	...	180 0 0	...	180 0 0	1,335	0 2 2
223 12 0	...	...	...	223 12 0	...	223 12 0	687	0 5 2
92 10 0	...	...	...	92 10 0	...	92 10 0	270	0 5 6
in this Municipality.								
216 13 8	...	...	...	216 13 8	...	216 13 8	406	0 8 6
166 0 0	...	...	...	166 0 0	...	166 0 0	259	0 10 3
4,907 6 0	...	...	...	4,907 6 0	...	4,907 6 0	20,090	0 2 6
401 11 0	...	...	...	401 11 0	...	401 11 0	2,162	0 2 11
202 4 0	...	...	...	202 4 0	...	202 4 0	708	0 4 4
181 0 0	...	...	...	181 0 0	...	181 0 0	1,015	0 2 10
283 4 5	...	...	...	283 4 5	...	283 4 5	1,496	0 3 0
161 0 0	...	...	...	161 0 0	...	161 0 0	449	0 5 8

Digitized by Google

A—VACCINE

Statement No. II *showing the Cost of the Department in the*

Number.	Municipalities.	Establishment. Inspector of Vaccination and Deputy Sanitary Commissioner.	First-Class Deputy Inspectors.	Second-Class Deputy Inspectors.	Vaccinators. First-Class.	Vaccinators. Second-Class.	Probationers.	Peons.	Expen... Pay of Establishment.	Travelling Allowance.	Contingencies.
1	2	3	4	5	6	7	8	9	10	11	12
									RS. A. P.	RS. A. P.	RS. A. P.
32	Negapatam	...	...	...	1	1	...	...	371 12 0	...	18 9 3
33	Nellore	...	...	...	1	...	...	...	144 0 0	...	28 3 10
34	Ongole	...	...	...	...	1	...	...	105 12 11	...	...
35	Ootacamund	...	...	...	1	...	...	...	204 0 0	...	23 8 0
36	Palamoottah	..	...	...	...	1	...	...	120 0 0	...	13 7 4
37	Palghat	...	...	...	...	1	...	...	120 0 0	...	...
38	Rajahmundry	...	...	...	...	1	...	...	120 0 0	...	40 0 0
39	Salem	...	...	...	1	2	...	...	485 6 10	...	6 12 0
40	Srirangam	...	...	...	1	...	...	...	136 5 11	...	...
41	Tanjore	...	...	...	1	1	...	...	300 0 0	...	24 0 0
42	Tellicherry	...	...	...	...	1	...	...	165 1 0	...	80 0 0
43	Tinnevelly	...	...	...	1	1	...	...	88 13 11	...	...
44	Trichinopoly	...	...	...	1	3	2	...	745 14 10	180 0 0	103 4 0
45	Tuticorin	...	...	...	1	...	...	...	178 0 0	...	67 8 6
46	Vellore	...	...	...	...	2	...	...	240 0 0	...	66 10 11
47	Vizagapatam	...	...	...	1	...	...	...	147 9 9	...	94 12 3
48	Vizianagram	...	...	...	1	...	...	...	180 0 0	...	...
49	Wallajapet	...	...	...	1	...	...	...	180 0 0	...	18 4 5
	Total of Municipalities ...	...	1	...	37	48	3	4	12,577 7 8	205 1 0	2,711 7 9
	Grand Total ...	1	31	7	212	375	105	27	1,28,317 0 10	10,476 5 8	9,786 1 2

Digitized by Google

DEPARTMENT.

Madras Presidency during the Calendar Year 1878—(Continued).

...diture.	Paid from							
Total Cost.	Imperial Funds.	Provincial Funds.	Local Funds.	Municipalities.	Native States, Zemindars or private Funds.	Total.	Number of all successful Vaccinations and Re-vaccinations.	Average Cost of each successful Case.
13	14	15	16	17	18	19	20	21
RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.
390 5 3	...	...	...	390 5 3	...	390 5 3	1,246	0 5 0
172 8 10	...	...	...	172 8 10	...	172 8 10	764	0 3 6
105 12 11	...	...	...	105 12 11	...	105 12 11	108	1 0 5
227 8 0	...	...	...	227 8 0	...	227 8 0	785	0 4 8
133 7 4	...	...	...	133 7 4	...	133 7 4	336	0 6 4
120 0 0	...	...	...	120 0 0	...	120 0 0	987	0 2 1
160 0 0	...	...	...	160 0 0	...	160 0 0	756	0 3 4
492 2 10	...	...	...	492 2 10	...	492 2 10	953	0 8 3
136 5 11	...	...	...	136 5 11	...	136 5 11	290	0 7 6
329 0 0	...	...	...	329 0 0	...	329 0 0	1,016	0 5 2
245 1 0	...	...	...	245 1 0	...	245 1 0	652	0 6 0
88 13 11	...	...	...	88 13 11	...	88 13 11	124	0 11 5
1,029 2 10	...	...	...	1,029 2 10	...	1,029 2 10	1,767	0 9 4
245 8 6	...	...	...	245 8 6	...	245 8 6	802	0 4 9
306 10 11	...	...	...	306 10 11	...	306 10 11	3,472	0 1 5
242 6 0	...	...	...	242 6 0	...	242 6 0	880	0 4 1
180 0 0	...	...	...	180 0 0	...	180 0 0	722	0 3 11
198 4 5	...	...	...	198 4 5	...	198 4 5	342	0 9 3
15,494 0 5	...	...	...	15,494 0 5	...	15,494 0 5	57,752	0 4 4
1,48,579 13 8	608 2 3	19,718 10 10	1,11,103 0 0	15,494 0 5	1,656 0 2	1,48,579 13 8	432,946	0 5 6

Digitized by Google

B—DISPENSARY VACCINATION.

Statement No. III *showing Dispensary Vaccination in the Madras Presidency during the Calendar Year* 1878.

District.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average Number of Vaccinators attached to Dispensaries during the season.	Total Number of Persons vaccinated.	Average number of Persons vaccinated by each Vaccinator.	Primary Vaccination. Total.	Primary Vaccination. Successful. Under 1 Year.	Primary Vaccination. Successful. Over 1 and under 6 Years.	Primary Vaccination. Successful. Total of all Ages.	Re-vaccination. Total.	Re-vaccination. Successful.	Percentage of Successful Cases. Primary.	Percentage of Successful Cases. Re-vaccination.
1	2	3	4	5	6	7	8	9	10	11	12	13
South Arcot.												
Old Town, Cuddalore.	1	1	190	190	190	19	64	133	...	...	70·	...
New Town, Cuddalore.	1	1	207	207	207	8	53	118	...	...	57·	...
Total ...	2	2	397	397	397	27	117	251	...	...	63·22	...

Digitized by Google

Comparative Statement No. IV *showing the Number of Persons Primarily Vaccinated and the Number of those Persons who were successfully Vaccinated in the Madras Presidency in each of the undermentioned Years.*

Establishment.	Persons Primarily vaccinated.													
	Official Years ended 31st March.												Calendar Year.	
	1872-73.		1873-74.		1874-75.		1875-76.		1876-77.		1877-78.		1878.	
	Total Number.	Number successfully vaccinated.	Total Number.	Number successfully vaccinated.	Total Number.	Number successfully vaccinated.	Total Number.	Number successfully vaccinated.	Total Number.	Number successfully vaccinated.	Total Number.	Number successfully vaccinated.	Total Number.	Number successfully vaccinated.
Local Funds	232,530	213,918	285,298	263,856	359,929	315,652	327,293	272,733	410,497	350,763	676,998	564,976	407,601	367,994
Military Cantonments	3,765	3,461	4,270	3,823	4,389	3,231	5,323	4,810	4,997	4,514	6,726	6,221	...	...
Native States	31,528	29,491	4,424	3,797	5,391	4,638	4,245	3,637	3,847	3,255	6,109	5,479	5,689	4,943
Municipalities	42,219	36,539	42,646	37,998	33,606	28,874	28,832	25,077	40,441	35,392	57,223	51,141	80,607	56,543
Private Vaccinators	3,228	3,092	5,192	5,008	6,062	5,838	5,934	5,508	3,048	2,795	471	471	160	154
Railway Apothecaries	12	10	4	4	10	9	...	...	57	49	10	7	...	...
Medical Subordinates	22,447	14,900	20,890	14,477	17,251	12,200	11,032	7,067	15,753	9,553	28,584	19,438	21,386	12,804
Dispensaries	751	728	675	635	2,029	1,606	408	297	87	77	584	364	397	251
Total ...	336,480	302,139	363,399	329,598	428,667	372,048	383,067	319,129	478,727	406,398	776,705	648,097	515,840	442,639

N.B.—Re-vaccinations are wholly excluded from this statement.

Digitized by Google

MILITARY CANTONMENTS.

BANGALORE.

The total vaccinated in this cantonment was 1,391, of which 760 were males and 631 females. The average percentage of success was 95·03. Two Vaccinators, one a first-class and the other a second-class, work under the orders of the Garrison Surgeon. First-class Vaccinator Aroomoogum Pillay vaccinated 779 cases, and one result only returned as unknown. Female Second-class Vaccinator Gnanamah reports a total of 612 operations. The total shows a decrease of 8 cases when compared with the work of the previous year. Small-pox was prevalent to a slight extent in Bangalore. The Garrison Surgeon reports that the conduct of the Vaccinators has been satisfactory. The number of infants vaccinated under one year of age was 753. The caste and sex of those vaccinated are—

	Males.	Females.
Europeans	56	29
Hindus	579	496
Mahomedans	123	108
Total ...	758	633

SECUNDERABAD.

Two Vaccinators, one a First-class and the other a Second-class Vaccinator, are stationed in this cantonment. They show a total of 2,539 cases with an average percentage of 94·99 of success; the results in 166 cases were unknown. The total shows a decrease of 1,056 cases when compared with the work of the preceding year, for which no explanation is given. The number of infants vaccinated under one year of age was 1,289. The caste and sex of those vaccinated are as follows :—

	Males.	Females.
Europeans	28	82
Hindus	808	1,044
Mahomedans	162	415
Total ...	998	1,541

KAMPTEE.

Two Vaccinators work in this station, one a second-class and the other a probationer. They report 1,802 cases having been vaccinated during the year, with a success of 84·89 per cent.; the results in 285 operations are unsuccessful. On comparison with the work of the previous year there exists an increase of 6 cases. The number of subjects vaccinated under one year of age was 1,030. The caste and sex of those vaccinated are given below :—

	Males.	Females.
Europeans	15	20
Hindus	891	535
Mahomedans	198	143
Total ...	1,104	698

Digitized by Google

Statement showing particulars of Vaccination in the Military Cantonments of the Madras Presidency.

Number.	Military Cantonments.	Population.	Average Population per Square Mile.	Average Number of Vaccinators employed throughout the Season.	Total Number of Persons vaccinated.			Average Number of Persons vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully vaccinated per 1,000 of Population.	Average Annual Number of Persons successfully vaccinated during previous 5 Years.		Average Number of Deaths from Small-pox during previous 5 Years.	
									Total.	Successful. Under 1 Year.	Successful. Over 1 and under 6 Years.	Successful. Total of all Ages.	Total.	Successful.	Primary.	Re-vaccination.		Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
					Males.	Females.	Total.														
1	Bangalore	81,810	...	2	760	631	1,391	695	1,389	717	417	1,260	2	2	95·03	100·	67	1,190	14	...	...
2	Secunderabad	52,458	...	2	998	1,541	2,539	1,259	2,317	1,175	839	2,213	222	199	95·51	89·64	40	2,364	45	...	...
3	Kamptee	47,244	...	2	1,104	698	1,802	901	1,787	872	302	1,517	15	11	84·89	73·33	32	1,009	21	...	...
	Total ...	181,512	...	6	2,862	2,870	5,732	955	5,493	2,764	1,558	4,990	239	212	90·84	88·70	28	4,563	25	...	...

Statement showing Cost of the Department in the Military Cantonments of the Madras Presidency.

Number.	Military Cantonments.	Establishment. Inspector of Vaccination and Deputy Sanitary Commissioner.	Establishment. First-class Deputy Inspectors.	Establishment. Second-Class Deputy Inspectors.	Establishment. Vaccinators. First Class.	Establishment. Vaccinators. Second Class.	Establishment. Probationers.	Establishment. Peons.	Expenditure. Pay of Establishment.	Expenditure. Travelling Allowance.	Expenditure. Contingencies.	Expenditure. Total Cost.	Paid from Imperial Funds.	Paid from Provincial Funds.	Paid from Local Funds.	Paid from Municipalities.	Paid from Native States, Zemindars or private Funds.	Total.	Number of all successful Vaccination and Re-vaccination.	Average Cost of each successful Case.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
									RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.
1	Bangalore ...	...	...	...	1	1	...	...	336 0 0	...	...	336 0 0	...	336 0 0	...	...	...	336 0 0	1,262	0 4 3
2	Secunderabad ...	...	...	...	1	1	...	...	336 0 0	14 0 0	...	350 0 0	350 0 0	...	...	...	...	350 0 0	2,412	0 2 4
3	Kamptee ...	...	...	...	...	1	1	...	216 0 0	...	...	216 0 0	120 0 0	...	...	96 0 0	...	216 0 0	1,528	0 2 3
	Total ...	...	...	...	2	3	1	...	888 0 0	14 0 0	...	902 0 0	470 0 0	336 0 0	...	96 0 0	...	902 0 0	5,202	0 2 9

(Signed) JAS. ANDERSON LAING, Surgeon,
Inspector of Vaccination and Deputy Sanitary Commissioner.

Digitized by Google

APPENDIX II.

INFLUENCE OF FAMINE ON GROWTH OF POPULATION.

Digitized by Google

APPENDIX II.

THE INFLUENCE OF FAMINE ON GROWTH OF POPULATION.*

By W. R. CORNISH, F.R.C.S., Surgeon-Major, Madras Army,
Fellow of the Madras University, and Sanitary Commissioner for Madras.

Introductory remarks.

Famines in India have been frequent within historical times, but it is only of recent years that we have had any accurate knowledge of the populations of the several Indian Provinces, or that Indian administrators have attempted to gauge the fluctuations in population by a registration of births and deaths, consequently our knowledge of the actual results of famine in past years, from want of statistical data, has been vague and indefinite.

We do know as a fact that the great famine of 1769 and 1770 in Bengal proved very destructive to life, but the proportion of population that perished must always be more or less a matter of speculation.

An eye-witness of the distress in Calcutta has left the following record of his experience; but the description, graphic as it is, gives only a general impression of the extent of the calamity, and does not deal with the matter statistically. George Bogle, a young civilian, afterwards employed by Warren Hastings on an important mission to Thibet, in writing to his father in September 1770, says:—

"Last year the crops failed to an extent never known before in the memory of man, which has reduced the inhabitants to the utmost distress. This town was better provided than most others and yet it has suffered amazingly. The Governor in Council had a magazine of grain with which they fed fifteen thousand every day for some months; and yet this could not prevent many thousands from dying of want, and the streets from being crowded with the most miserable objects. There were sometimes 150 dead bodies picked up in a day and thrown into the river. In the country the distress was greater, as it was further removed from the sea, and not so easily supplied from distant countries. Whole families perished of hunger or fed upon leaves of trees, or contrary to their religion, ate animal food, some even subsisted on the dead carcases. Their distress is unparallelled, and it shocks one to think of it. A million and a half of people are said to have perished in the provinces that belong to the English.

"There is one thing that must amaze every one that has been used to a free country. There is an indolence and indifference about them that is astonishing, and despair rather increases it. They have died without a single effort to obtain grain, either by force, or even by toil and labor. What mobs and commotions there would be with us were grain to increase to three times its price and in many instances it was a hundred times what it usually is!"

Three months later the same writer notes:—

"The price of grain is very much fallen, and the people are again living in plenty and contented."

The great famine of Southern India in 1833-34 must have had a very decided influence in the checking of population. A census of the Madras Presidency was taken in 1822, when the population in round numbers was found to be 13½ millions. In 1838, or four years after the famine, another census was taken, and the total population in sixteen years had increased only by half a million, or

---

* This paper was originally prepared for the Statistical Society of London, but having been submitted to the Indian Famine Commission is here reprinted, with additions and corrections including the population statistics of 1878.—W.R.C.

Digitized by Google

to a total, in round numbers, of 14 millions. In the districts mainly affected by the famine of 1833-34, the population had considerably decreased (in Guntoor to the extent of 40 per cent.) In the districts untouched by the famine the census returns indicate a normal increase of population. The results of the 1833-34 famine will be noted in detail further on. Since 1770 India has never witnessed so great a famine as that of 1876-77. The area of drought and scarcity was a very wide one, including nine or ten of the Revenue divisions of the Bombay Presidency; fourteen out of twenty-one districts of the Madras Presidency; nearly the whole of the Province of Mysore; and the South and East portions of the Nizam's dominions.

And beyond the actual famine area, the failure and irregular distribution of rain has caused great distress, in some instances amounting to actual famine, over almost the whole of the N.-W. Provinces, Oude, Cashmere, some portions of Northern Bengal, and various Native States in Central India.

In the remarks I have to make I shall confine my observations to the effects of famine on population in the Madras Presidency, of which I have personal knowledge. Anything like a general history of the famine would be foreign to the subject of this paper, but a brief notice of the circumstances and condition of the people in ordinary seasons will serve to explain on what classes of the people a food dearth presses with undue severity.

Population of Madras Presidency.

The population of the Madras Presidency in 1871 was 31,597,872. In regard to the great bulk of the people, their customs as to religious worship, caste divisions, &c., show them to belong to the great sub-division of Sudras, and they are evidently of non-Aryan descent. Of Brahmans, or persons who had assumed the title of Brahman, there were only 1,095,445 in the whole Presidency, and of Mahomedans 1,880,720. As regards the latter class, very few were of Moghul or Pathan descent, the great bulk being either converts from the Hindu races, or persons of mixed parentage.

Principal occupations of the people.

In regard to occupation, the great bulk of the people are in some way connected with, and dependent upon, agricultural employment. Of 9,930,012 males whose occupations were noted at the Census of 1871, 4,878,890 were returned as "cultivators," 2,071,602 as "laborers," and 176,580 as owners of land, or persons of independent means. Of the total male population of an age to have an occupation, 85 per cent. were engaged in farming on their own account, or in working for hire, chiefly in the cultivation of the soil, and the female occupations would naturally follow in the same proportion, although not specially noted at the census.

The number of separate holdings of land under Government was 2,392,064, but many of these were held by more than one person, or jointly by members of a family, and these figures do not include the separate holdings of sub-tenants of large zemindari estates. About one-fifth of the area of the Presidency is under *zemindari* tenure, and about four-fifths of the land is held by the "puttahdars" direct from Government under *Ryotwari* tenure. The right and title of the ryot to his land is indefeasible, unless, and until, he fails to pay the land tax due on it. The extent of land held by ryots on separate "puttahs" varies from less than an acre to more than 1,000 acres, but the great majority are small holdings under 20 acres, and the cultivators are mainly of the class of peasant proprietors, with no reserve of capital to meet contingencies of bad seasons and repeated failure of crops. The minute sub-division of agricultural holdings is no doubt an important consideration in reference to the pressure of famine on a population.

Wages of agricultural poor.

In regard to the condition of the farm laborer it must be understood that the permanent hands are invariably paid their wages in grain, never in money. The rates vary in different districts, but inquiry has shown that the quantity of cleaned cereal grain is not usually less than from 4 to 5 lbs. per diem, and often more. The laborer often enjoys the privilege of cultivating vegetables, chillies, and a few oil seeds or nuts on his own account, and as he gets beside the subsistence allowance of grain a percentage on the yield of the harvests, his prosperity depends very greatly on the abundance of the crops. Usually the permanent laborers get small

Digitized by Google

money advances from their masters, and occasional presents of clothing, or a rupee now and again on festival occasions, but whatever money may be advanced by the master the laborer is seldom able to repay, and as a rule is tied to his servitude for life. In the slack season of the agricultural year, for two or three months, when there is nothing doing in the fields, the laborer is allowed to work on his own account for money wages, if he can get employment on public works or in any other capacity.

The small cultivators who hold land on their own account are not very much better off than the hired laborers, and one or two bad seasons ruin them. In harvest times wages for extra hands are sometimes paid in money, but more frequently in grain, or a share of the produce, whatever it may be. Payment in kind is universal among the agricultural population.

Usual food of the poor.

The food of the working agriculturist is usually some variety of millet, known in the south as ragi (*Eleusine coracana*), cholum, (*Sorghum vulgare*), cumbu (*Pencillaria spicata*), and several varieties of *Panicum*. Rice is not eaten by the laboring poor or small farmers except as an occasional luxury. The millets used so largely by the laboring classes grow in an ordinary season without irrigation, and with only an occasional watering, whereas rice requires continual irrigation, and is, in India, altogether an aquatic plant. The defects of the cereal grain as to nitrogenous aliment, are eked out, either by pulses, or more frequently with the working classes, by animal food of every kind and description. Nothing in the way of such food comes amiss to the old servile races who till the fields. The flesh of an animal which has died of disease is not despised, and during the famine the glut of animal food from dead bullocks helped to tide thousands of the population over the worst period of scarcity. Besides the very considerable use of animal food when it comes in the way of the working poor, all classes eat fruit and vegetables freely, while milk, curds, and butter enter more or less into the dietaries of all classes of the agricultural population. The cow is sacred to the Hindu on account of the value of its products as food, and very few persons realise how important are milk, curds, and butter in the dietary of a population depending for its staple food on the vegetable kingdom.

Quantity of grain necessary for adults.

The quantity of cereal grain that a healthy adult laborer will eat varies according to individual capacity, but is never less than $1\frac{1}{2}$ to 2 lbs. of dry grain daily, when he can get enough to satisfy his appetite. The millets are husked, ground to a coarse flour, which is sometimes sifted, and usually eaten, after being boiled, in the form of a pudding or porridge. Sometimes the flour is made into unleavened cakes. Frequently the pudding balls are kept for a few hours in the water in which they are boiled so as to produce a slight acetous fermentation in the mass. All Indian millets are richer in albuminoid principles than rice, and the laboring classes have learnt by experience that they can do more work on them. The retail market rates of these grains in ordinary years vary from 60 to 80 or 90 lbs. avoirdupois the rupee. During the height of the famine the common food-grains were selling at from 10 to 20 lbs. weight the rupee.

Non-agricultural laborers.

In addition to the agricultural classes there are, especially about towns and centres of European residents, a numerous body of laborers who work for daily hire and are paid in money. Money wages vary considerably in different districts, but the testimony of all observers goes to show that rates have risen from 30 to 60 per cent. of recent years. While money wages have risen, the condition of these classes has not perceptibly improved. They seldom save, and the increasing public revenue from sale of spirits points very clearly to the mode of disposal of their surplus earnings.

Professional earth-workers.

There is also a considerable class of persons scattered over the south of India, known as Tank-diggers or "Wuddahs," who work chiefly by contract for money wages. These are the people who in ordinary years are the mainstay of our public works. They do the earth-work of railways, dig canals, wells, channels, and level the soil to fit it for irrigation. They have by long generations of experience organized amongst their families and clans a most excellent system of sub-division of labor, so that while

Digitized by Google

earning a high average wage, they are able to execute works of this class at a cheaper rate than any other class of the community. Every individual in a tank-digging community, from the child just able to carry a basket of earth to the old man or woman of seventy, finds a place in this sub-division of labor. So far as my experience is concerned, wherever these people could find work during the famine, they managed to support themselves and families in good physique. Wherever there was any real work done by famine labor, as in excavating the Madras Junction Canal, the Buckingham Canal, and Railway extension, this class of the population was employed to do the hard work, and on the whole they probably passed through the famine with less suffering and distress than any of the purely agricultural classes.

Unproductive classes.

But in India there is always a very large number of unproductive persons who subsist upon the earnings of the actual laborers. The old and young of both sexes come under this category, and these were the first to feel the effects of the food scarcity. Then again there is a large floating population that subsists in ordinary times on public charity; nomadic tribes also who live on the produce of the jungles, or who carry grain and salt, and never work at husbandry or ordinary labor. All these classes necessarily suffered acutely from the food dearth. In undivided Hindu families custom permits many of the members to eat the bread of idleness, and there is always a very large section of the population that does no work for its livelihood. It is a matter of astonishment to those unacquainted with India to notice the number of persons who never seem to have any employment. Go into a village at any time of the day, and there are sure to be any number of able-bodied loafers to watch the movements of a stranger and who apparently have nothing else to do. If one member of a family is a bread-winner, the fact seems to be a sufficient reason for all his belongings "sitting quiet," as they express it, at home.

In dealing with Indian famines this peculiar characteristic of the people, of able-bodied relatives depending for their maintenance on those who have an occupation or employment, cannot be left out of sight.

Early symptoms of famine.

The condition of the agricultural classes in some of our districts attracted attention early in 1876. The seasons in 1875 had been irregular, and rainfall either deficient in quantity, or coming inopportunely for cultivation. But the south-west monsoon in 1876 from June to September was generally a failure and so were the later rains of the north-east monsoon. In August 1876 it was plain that the districts of Bellary, Kurnool, and Cuddapah, which depend on the south-west monsoon rains must be greatly distressed, and the unusual drought in other districts made it evident that the food supplies would need supplementing. Food importation began in August 1876, and before the end of the year private trade in grain had become exceedingly active.

Food reserves.

The reserve stocks of food in a country it is always important to know, but there was great difficulty in getting accurate information on this important subject. Rice is a grain that does not keep well, and is never stored in large quantities. But the common millets, which form the staple food of five-sixths of the agricultural and laboring classes, bear storage very well, and the custom is for the cultivators who employ laborers to reserve enough grain to keep their own families and to pay the grain wages of their laborers. Many substantial farmers keep always on hand a stock equivalent to three or four years' household consumption, but the smaller land-holders probably have to content themselves with enough to tide them over the intervals between harvests. As a rule the people do not eat new grain. They prefer that which has been stored, and the grain pits when properly made will keep ragi and cholum free of decay or weevil for many years.

The habits of the people in storing grain and paying wages in grain renders market prices an uncertain indication of the sufficiency of food in a country. The markets in fact deal only with the surplus produce of the country after the consumption of the agricultural classes has been provided for, and these classes as we have seen constitute more than 80 per cent. of the population. That there must have been large reserves of food at the beginning of the famine is evident from

Digitized by Google

the fact that our total importations during the famine period would not suffice to keep more than *nine* millions of population for twelve months, on bare subsistence allowance, whereas actual famine prevailed for more than that time over an area occupied by 25 millions of population.* If the practice of laying by grain for domestic use had not been so universal, the effects of the famine would have been much more disastrous than they really were. There is reason to suppose that with improved facilities of transport, and the temptation of higher prices in distant markets, the practice of grain storing amongst the cultivators is not so general as it used to be. Probably all classes keep smaller stocks, and sell closer than they did when roads, railways, and canals had no existence, but as the whole population refuse to eat new grain when they can get old, there must in ordinary years be sufficient grain to tide a population over one bad harvest, though a succession of bad seasons must inevitably cause a food dearth.

Importation of food-grains in 1877 and 1878.

From October 1876 to December 1877 the returns of the Board of Revenue show that 1,282,877 tons of grain were brought into the Madras ports by sea. Of this quantity 1,038,917 tons consisted of rice, or unhusked rice termed "paddy," and 243,960 tons of other grains, including pulses, wheat, cholum, and ragi. A large quantity of grain of various kinds was brought down from the Central Provinces and Northern India by the Great Indian Peninsula Railway, especially in the crisis of the famine from March to August 1877, but the returns of the exact quantities so imported I have been unable to procure. In 1878 the Board of Revenue returns show the following importations by sea :—

	Tons.	Value Rs.
Pulses	25,520	26,84,687
Paddy	98,815	66,23,055
Rice	190,962	212,38,805
Other grains	881	82,682
Total ...	316,178	306,29,229

It will be seen that throughout the famine period the great bulk of grain imported was rice, either prepared for food or unhusked. Burmah and Lower Bengal were the chief sources of supply. No other grain was so readily available for the feeding of the famished masses; but rice is a food to which the bulk of the agricultural poor of the inland districts of Madras are unaccustomed, and whether engaged on public works or in poor houses it is certain that the famished poor did not thrive and maintain their physical powers on this grain as they usually do when living on the millets to which they are habituated. So scarce were the millets, ragi, and cholum in 1877 that, although these grains are habitually used for feeding prisoners in jails, it was impossible for the jail contractors to find a sufficient supply in the markets, and rice had to be resorted to instead.

In ordinary years the Madras Presidency grows enough of food grains for home consumption, and often exports grain to other countries. The yearly consumption of 30,000,000 of population cannot well be taken at less than one lb. per day for individuals of all ages, and at this rate, and allowing one-sixth of the crop for seed, it is necessary that 5,703,125 tons of grain of various descriptions should be grown every year to meet the wants of the population, on a bare subsistence scale. As compared with the every day wants of the population, it will be seen how insignificant were the contributions from other provinces to meet the local food dearth. Allowing a liberal margin for imports by railway, it is certain that the total food importations during the famine period did not suffice for more than a four months' supply for the whole population.

Revenue Divisions of Madras Presidency.

The Madras Presidency for purposes of administration is divided into twenty-one districts. Of these thirteen are on the sea-board and eight inland, and destitute of direct communication with the sea. Of the thirteen sea-board districts, eleven are on the eastern and two on the western side of the peninsula; these latter which are exposed to the

* Including Mysore and southern districts of Hyderabad drawing grain from Madras Ports.

Digitized by Google

heaviest rainfall of the south-west monsoon had no famine. Of the districts on the eastern sea-board of the peninsula, the three most northerly, Ganjam, Vizagapatam, and Godavari, not only grew enough food to feed their own populations, but helped very materially to assist the less fortunate tracts. Kistna, the next northernmost district, was in parts distressed, but owing to its irrigation system, the sea-board and delta populations were carried through the famine without loss. The Nellore District suffered severely, as did Madras and Chingleput. In South Arcot, famine did not appear until late in 1877. Through the early part of the year the district held its own and exported grain. Tanjore, the next district southward, is our most densely populated and fertile tract. It is watered by the irrigation works of the Cauvery river. Its land-owners are wealthy, and they profited largely by the famine prices of their produce. This district had no distress of its own, but was overrun by wanderers from the interior in search of food. The sea-board of Madura was less distressed than the interior, but this district as a whole suffered severely from the famine. Tinnevelly, the most southern of our districts, suffered a good deal in the dry tracts, but the population in the valleys of the rivers is rich and well-to-do, and the famine distress was of comparatively short duration.

Of the eight inland districts, viz., Bellary, Kurnool, Cuddapah, North Arcot, Salem, Coimbatore, Nilgiris, and Trichinopoly, all, except the last, suffered very severely from famine. Trichinopoly benefits in a great degree from the irrigation system of the Cauvery river that makes Tanjore so fertile, and its resident population except in the upland taluks did not suffer to any great extent, but the district was crowded with famine-stricken wanderers from Coimbatore and Salem, who added much to the normal death-rate of the district.

In 1878, owing to irregular seasons, and continued scarcity of grain, there was a considerable amount of food distress in Ganjam, Vizagapatam, Godavari, Malabar, and Canara Districts which, in the critical famine period, escaped without much suffering.

Non-famine districts.

The districts which, while escaping actual famine in 1877, were subjected to some distress from enhanced cost of food, were the following :—

Districts.	Population in 1871.	Area in Square Miles.	Population per Square Mile.
1. Ganjam	1,520,088	8,313	182·9
2. Vizagapatam ..	2,159,199	18,344	117·7
3. Godavari	1,592,939	6,224	255·9
4. Kistna	1,452,374	8,036	180·7
5. Tanjore	1,973,731	3,654	540·1
6. South Canara ..	918,362	3,902	235·4
7. Malabar	2,261,250	6,002	376·7
Total ..	11,877,943	54,475	218·0

Famine districts.

The districts of the Madras Presidency which suffered actual famine may be divided into two classes : 1st, the early famine districts in which food dearth began to be felt in 1876, and the later famine districts in which the unseasonable weather of 1877 converted scarcity and high prices into famine.

Digitized by Google

Early Famine Districts.

Districts.	Population in 1871.	Area in Square Miles.	Population per Square Mile.
1. Nellore	1,376,811	8,462	162·7
2. Cuddapah	1,351,194	8,367	161·5
3. Bellary	1,668,006	11,007	151·5
4. Kurnool	959,640	7,358	130·4
5. Chingleput ..	938,184	2,753	340·7
6. North Arcot ..	2,015,278	7,139	282·3
7. Salem	1,966,995	7,483	262·9
8. Coimbatore ..	1,763,274	7,432	237·3
9. Madura	2,266,615	9,502	238·5
10. Madras Town ..	397,552	27	14,724·1
Total ..	14,703,549	68,530	214·5

Later Famine Districts.

Districts.	Population in 1871.	Area in Square Miles.	Population per Square Mile.
1. South Arcot ..	1,755,817	4,873	360·3
2. Trichinopoly ..	1,200,408	3,515	341·5
3. Puducottah State ..	316,695	1,380	229·5
4. Tinnevelly	1,693,959	5,176	327·3
5. Nilgiri	49,501	749	66·0
Total ..	5,016,380	15,693	319·6

Thus we see that out of a total population of 31,597,872 and an area of about 139,698 square miles, famine affected late in 1876 and early in 1877 an area of 68,530 square miles, inhabited by fourteen and a half millions of population, and later in the year a further area of 15,693 square miles and five millions of population, or a total area of 84,223 square miles and a population of very nearly twenty millions.

Density of population in relation to famine.

A glance at the tabular statements above will show that there was no apparent connection between famine and density of population. The Malthusian doctrine, that nature checks redundancy of human growth by her own methods, finds a good deal of favor with some observers, but facts disclose to us that famine began and was really most severe in districts like Nellore, Cuddapah, Bellary and Kurnool, where the population scarcely averages 150 persons to the square mile. On the other hand, Tanjore with its 540·1 persons to the square mile, and Malabar with 376·7 passed through the food dearth without any abnormal loss of population. South Arcot, Trichinopoly and Tinnevelly, all with somewhat dense populations, did not suffer in any degree like the districts above named.

The modes of reduction of population in famine times.

Famines tend to the reduction of population in two ways: 1st, by excessive mortality of the living; 2nd, by bringing about wasting and changes of the reproductive organs, and diminishing the fertility of a population. The undue waste of life has been demonstrated in former experience of Indian famines, but the diminished powers of reproduction have never attracted notice in this country until I demonstrated the fact.

Excessive mortality.

As regards excessive mortality in famine times, this arises in two ways: 1st, by an exaggeration of the conditions favorable to epidemic pestilences, and by the complication of want and privation superadded to the difficulties of battling with ordinary disease; 2nd, by diseased conditions which are the physiological and pathological outcome of chronic insufficiency of nutriment. It is practically impossible to say how many deaths were the direct, or indirect, result of famine, but this much is certain, that our registers of mortality and the results of a partial census of the famine area alike

Digitized by Google

indicate the close connection between severity of famine and excessive mortality. The truth is of universal application that no food dearth can affect a community for a prolonged period without causing excessive mortality, and hindering, for the time being, the normal reproductive powers of the people affected.

Registration of vital statistics.

To ascertain the effects of famine on population we must examine the vital statistics in ordinary and in famine years. The registration of deaths has been attempted in Madras since 1866, and of births since 1869. As regards towns under municipal government, the law, since 1871, lays down penalties for neglect to report events of this nature, but for the country generally there is no legal power compelling the people to register births and deaths. Every village in the country is a commune, with its headman or magistrate, accountant, messengers, village police, and scavengers, who are paid for their services in assignment of lands or village dues, and the practice of the Madras Government has been to make the village accountant (the man who keeps the accounts of the Government in regard to the lands cultivated by each ryot and the tax due on them) a registrar of births and deaths. There are more than 50,000 villages and each village has a separate accountant who is *ex-officio* registrar. In districts where the villages are small and compact, registration is tolerably fair, but in villages of large area with scattered hamlets, births and deaths are but indifferently reported. During the famine time many of the village officials suffered distress equally with the inhabitants and went away in search of food and work, so that the registration was often neglected. Thousands of the people moreover wandered away from their homes and dropped down and died by the road-sides, or in uninhabited places, and these deaths were unregistered.

In some districts births and deaths are at all times very indifferently reported, and the registration so far has been only of relative value, in indicating the health condition of the population. As absolute records of changes in the population, the village registers cannot be trusted.

But for comparison of results year by year, and for indicating geographical distribution of disease, the death registers have a value of their own, notwithstanding their imperfection. The errors are all errors of omission, and in ordinary years a tolerably constant quantity. The same observation applies to the birth registration.

The registration in towns is more accurate than that in the rural districts, but in 1877 the town populations were so much increased by temporary residents during the famine period that the ratios of births and deaths for that year cannot be relied on.

The following table shows the gross results of birth and death registration for the whole Presidency including towns. Certain areas of country do not furnish any registration statistics, and these areas vary somewhat from year to year. The population furnishing birth and death returns is shown for each year,—the figures are taken from the censuses of 1866 and 1871 :—

Birth and Death Registration, Madras Presidency.

Years.	Population.	Births.	Ratio per Mille.	Deaths.	Ratio per Mille.
1866 (famine year) ..	22,294,694	..	..	600,106	26·9
1867	22,347,713	..	..	372,026	16·6
1868	25,017,323	..	..	390,959	15·6
1869	24,633,127	452,410	18·5	451,981	18·3
1870	24,125,526	439,063	18·1	451,020	18·6
1871	24,555,046	517,109	21·0	444,371	18·0
1872	30,147,779	554,379	18·3	508,182	16·8
1873	30,287,842	538,123	17·7	513,232	16·9
1874	30,360,221	580,709	19·1	521,329	17·6
1875	30,278,903	638,771	21·1	641,260	21·1
1876	29,157,056	632,1[illegible]3	21·6	680,384	23·3
1877 (famine year) ..	29,209,542	477,447	16·3	1,556,312	53·2
1878 (do.) ..	29,127,205	348,657	11·9	810,921	27·8

Digitized by Google

The following table gives the same information in regard to the town populations for the past six years :—

Birth and Death Registration in Towns.

Years.	Population.	Births.	Ratio per Mille.	Deaths.	Ratio per Mille.
1872	1,588,106	36,084	22·7	41,865	26·3
1873	1,588,106	40,533	25·5	42,897	27·0
1874	1,588,106	47,572	29·9	45,216	28·4
1875	1,607,749	45,522	28·3	52,806	32·8
1876	1,600,044	44,281	27·6	52,564	32·8
1877 (famine) ..	1,604,188	43,771	27·2	110,888	69·1
1878 (do.) ..	1,620,480	41,133	25·3	62,428	38·5

From the greater accuracy of the town registration, it seems probable that in ordinary years only about two-thirds of the deaths and a smaller proportion of births are reported in rural districts. But to show the effects of famine on the birth and mortality rates in 1877 and 1878, it is essential to give distinct tables for the *non-famine* and *famine* districts.

Non-Famine Districts, 1877.

Districts.	Population from which returns were received.	Births: Births in 1877.	Births: Ratio per 1,000 of Population.	Births: Mean Ratio of 5 years.	Deaths: Deaths in 1877.	Deaths: Ratio per 1,000 of Population.	Deaths: Mean Ratio of 5 years.
Ganjam	1,166,496	22,933	19·6	19·3	19,890	17·0	14·3
Vizagapatam ...	1,548,470	23,412	15·1	14·4	27,477	17·7	14·5
Godavari ...	1,592,103	30,828	19·3	18·1	32,886	20·6	19·2
Kistna	1,452,066	22,292	15·3	17·8	36,625	25·2	16·9
Tanjore	1,972,820	54,626	27·6	29·3	73,846	37·4	23·8
South Canara ...	918,042	18,659	20·3	20·3	30,707	33·4	17·8
Malabar	2,253,258	40,440	17·9	18·2	49,594	22·0	17·1
Total ...	10,903,255	213,190	19·5	19·9	271,025	24·8	18·6

Famine Districts, 1877.

Districts.	Population from which returns were received.	Births: Births in 1877.	Births: Ratio per 1,000 of Population.	Births: Mean Ratio of 5 years.	Deaths: Deaths in 1877.	Deaths: Ratio per 1,000 of Population.	Deaths: Mean Ratio of 5 years.
Nellore	1,376,483	7,692	5·5	18·0	65,831	47·8	13·9
Cuddapah ...	1,350,967	14,626	10·8	17·0	120,301	89·0	17·6
Bellary	1,665,815	22,428	13·4	22·4	154,367	92·6	18·6
Kurnool	914,232	10,507	11·4	19·5	85,869	93·9	18·4
Chingleput ...	934,523	12,468	13·3	23·0	61,713	66·0	19·5
Madras (Town) ...	381,926	13,929	36·4	26·2	45,636	119·4	34·3
North Arcot ...	1,929,927	25,591	13·2	22·8	159,704	82·7	21·1
Salem	1,966,362	25,666	13·0	24·3	177,362	90·1	21·7
Coimbatore ...	1,762,679	21,701	12·3	15·7	99,912	56·6	15·3
Madura	1,327,899	20,627	15·5	18·4	79,310	59·7	12·2
South Arcot ...	1,755,324	31,396	17·8	18·3	96,754	55·1	16·7
Trichinopoly ...	1,199,155	28,967	24·1	24·9	66,674	55·6	19·7
Tinnevelly ...	1,693,629	27,403	16·1	18·6	68,425	40·4	18·9
Nilgiri	47,366	1,256	26·5	21·5	3,429	72·3	19·0
Total ...	18,306,287	264,257	14·4	20·0	1,285,287	70·2	19·7

These figures show that while in the non-famine tract the births had not decreased and the death-rate had increased only from 18·6 to 24·8 per mille, in the famine area the births had decreased from 20 to 14·4 per mille, and the deaths increased from 19·7 per mille to 70·2 per mille in 1877.

Digitized by Google

The following tabular statement shows the registration results for 1878:—

Non-Famine Districts, 1878.

Districts.	Population from which returns were received.	Births.			Deaths.		
		Births in 1878.	Ratio per 1,000 of Population.	Mean Ratio of 5 years.	Deaths in 1878.	Ratio per 1,000 of Population.	Mean Ratio of 5 years.
Ganjam	1,002,464	15,875	15·8	19·3	29,334	29·2	14·3
Vizagapatam ...	1,544,529	22,105	14·3	14·4	28,055	18·1	14·5
Godavari ...	1,592,108	30,027	18·8	18·1	59,517	37·4	19·2
Kistna	1,452,066	21,219	14·6	17·3	41,928	28·8	16·9
Tanjore	1,972,820	48,726	24·7	29·3	56,023	28·4	23·8
South Canara ...	918,042	16,062	17·5	20·3	33,412	36·4	17·3
Malabar	2,228,238	32,256	14·4	18·2	42,481	19·1	17·1
Total ...	10,710,252	186,290	17·3	19·9	290,750	27·1	18·6

Famine Districts, 1878.

Districts.	Population from which returns were received.	Births in 1878.	Ratio per 1,000 of Population.	Mean Ratio of 5 years.	Deaths in 1878.	Ratio per 1,000 of Population.	Mean Ratio of 5 years.
Nellore	1,376,483	4,987	3·6	13·0	38,772	28·2	13·9
Cuddapah ...	1,350,967	5,781	4·3	17·0	55,086	40·7	17·6
Bellary	1,665,815	8,644	5·1	22·4	76,137	45·7	18·6
Kurnool	914,233	3,078	3·3	19·5	43,932	48·0	18·4
Chingleput ...	934,523	14,238	15·2	23·0	16,961	18·1	19·5
Madras (Town) ...	381,926	14,679	38·4	26·2	17,974	47·1	34·3
North Arcot ...	2,014,254	14,523	7·2	22·8	50,880	25·2	21·1
Salem	1,966,362	14,035	7·1	24·3	49,455	25·1	21·7
Coimbatore ...	1,762,679	12,501	7·1	15·7	29,499	16·7	15·3
Madura	1,329,207	9,924	7·4	18·4	31,977	24·1	12·2
South Arcot ...	1,755,324	17,955	10·2	18·3	40,618	23·1	16·7
Trichinopoly ...	1,199,155	17,506	14·6	24·9	29,082	24·2	19·7
Tinnevelly ...	1,698,629	23,628	13·9	18·6	37,969	22·4	18·9
Nilgiri	72,396	943	13·02	21·5	1,929	26·6	19·0
Total ...	18,416,953	162,367	8·8	20·0	520,171	28·2	19·7

It will be observed that in 1878 the birth-rate in the famine area underwent a remarkable reduction, the average being only 8·8 per mille instead of 20, while mortality was higher than usual both in the famine and non-famine districts.

Registered causes of death in famine times.

Death registration in ordinary seasons fails to take note of more than two-thirds of the actual mortality. In famine seasons, with disorganization of village life and communal administration, it is probable that not one-half of the actual deaths, especially in the early months, were ever recorded. In more than one district I have reason to suppose that the death registration failed even relatively to exhibit the severity of the famine. It is obvious therefore that the mortality returns *alone* cannot be depended upon for showing the absolute losses of the population.

In the following table is given the registered causes of mortality for 13 years ending 1878. These assigned causes of death are not very accurate, as they depend on unprofessional testimony; but it will be seen that under all heads there is an enormous increase of mortality during the famine period. Practically, epidemic cholera played great havoc amongst the people in the early days of the famine, when they began to desert their homes and herd closely in towns and relief centres. Small-pox in India is an invariable accompaniment of famine, and was unusually prevalent in 1877. Malarious fevers seem also very generally to affect a famine-stricken population after rain has fallen, and the dry and heated soil has been saturated with moisture. But although the death registration does not fully demonstrate the fact, it is the bodily wasting of the people, ending in diarrhœa, dysentery and dropsy, that accounts for the great excess of mortality in famine times. In camps and relief houses, where the worst class of sufferers were congregated, at least three-fourths of the mortality was the direct result of innutrition and wasting of the assimilating organs.

Digitized by Google

Table showing registered causes of Mortality in Madras Presidency, 1866 *to* 1878.

Years.	Total Deaths.	Cholera.	Small-pox.	Fevers.	Bowel complaints.	Other Causes.
1866 (famine year)	600,106	200,961	23,106	110,102	..	265,937
1867	372,026	33,205	27,907	112,511	..	198,403
1868	390,959	8,036	34,330	105,692	..	242,901
1869	451,981	21,034	17,448	132,346	..	281,153
1870	451,020	55,867	11,252	151,027	..	232,874
1871	444,371	17,656	20,823	192,469	38,928	174,495
1872	508,182	13,247	39,074	214,148	39,387	202,326
1873	513,232	840	51,784	222,843	36,392	201,375
1874	521,329	313	48,343	226,220	37,993	208,460
1875	641,260	94,546	24,775	252,042	37,484	232,513
1876	680,384	148,193	23,469	230,092	38,176	240,454
1877 (famine year)	1,556,312	357,430	88,321	469,241	133,366	507,954
1878 (do.)	810,921	47,167	56,360	374,443	48,083	284,868

Diminished fertility of population.

The prolonged scarcity and high cost of living appear to have had a sensible effect in diminishing the fertility of the people. In 1877 the registered births were 25 per cent. below the average of the two previous years. In 1878 the registered births fell to 11·9 per mille or nearly 45 per cent. below the mean of the two years 1875 and 1876. If we assume that the normal birth-rate in the population furnishing returns (about 30,000,000) is at the annual rate of 30 per thousand, and this is, I consider, a low estimate for India when food is cheap and abundant, there must be annually added to the population about 900,000. In ordinary years we do not register much more than one-half of the actual births, and it may be assumed that by diminished births alone the population suffers an annual diminution of about half a million, so long as the influences of famine affect the poorer classes. These influences will pass away very slowly, and it seems probable that many women who under ordinary circumstances would have continued prolific for years to come, have been rendered permanently incapable of child-bearing by the severe wasting of the glandular structures concerned in reproduction.

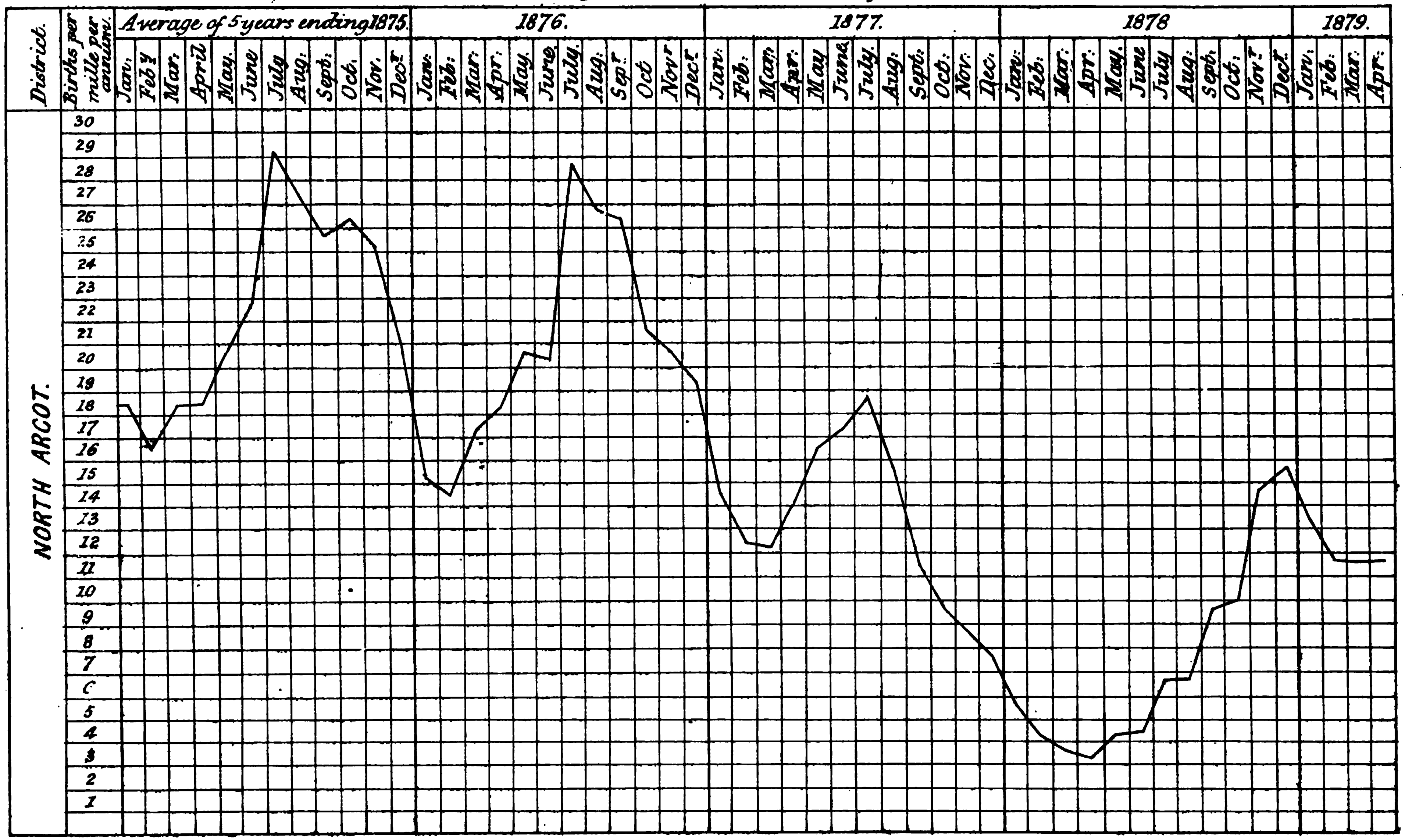
My attention was early directed to the effects of food dearth on reproduction. The circumstance which led me to investigate the subject was that I observed so many women in the relief houses giving birth to children in a condition of extreme emaciation. These infants had been starved *in utero* by the defective nutrition of the mothers, and it seemed probable if defective nutrition had such an effect after conception, that a continuance of the food scarcity would cause such wasting of the structures concerned in reproduction as to sensibly influence the birth-rate. And this is exactly what happened. The monthly returns of births show that in proportion to the intensity of famine in particular areas the births decreased, and the fewest births were invariably recorded in the period nine months subsequent to the greatest famine pressure. A few diagrams illustrating the monthly fluctuations in birth-rates of typical districts are attached in illustration of the remarkable phenomena connected with reproduction in famine times.

The diagrams show clearly enough that with the decrease of famine intensity the birth-rate began to improve. From April and May 1878 there was a gradual improvement in the birth-rate in all the districts except those in which the famine effects were still being felt by the poor, and in many of the districts which had not suffered from food scarcity in 1877 the continuance of high prices and occurrence of food distress in 1878 had a sensible effect in lowering the number of births. Whatever may have been hitherto advanced in regard to the connection between the food and fertility of a population, our Indian experience warrants the statement that when food is so scanty as to cause wasting and privation of the poor, there must certainly be diminished powers of reproduction. The Bombay registration tables of births entirely corroborate the Madras results in this particular.

Proportion of child-bearing women in a population.

In regard to statistical evidence as to the frequency of pregnancy in a population, I am not aware that there are any observations on record for guidance. When we speak of an annual birth-rate of 30 per mille of population it is understood that the

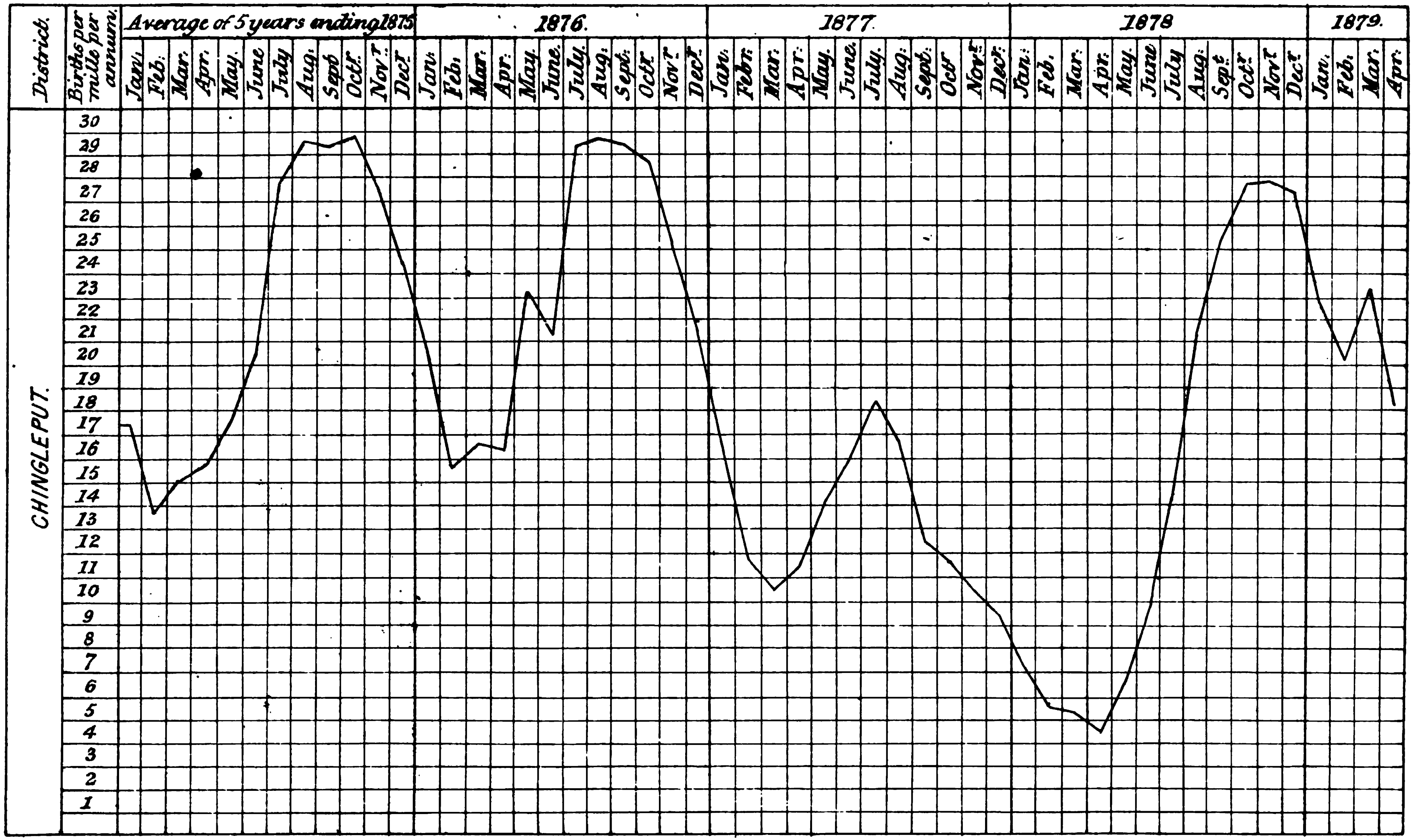
DIAGRAM, showing the Birth rate per mille per annum in the district of NORTH ARCOT in 1876, 1877, 1878, and 1879 compared with the average of 5 previous years ending 1875.



Digitized by Google

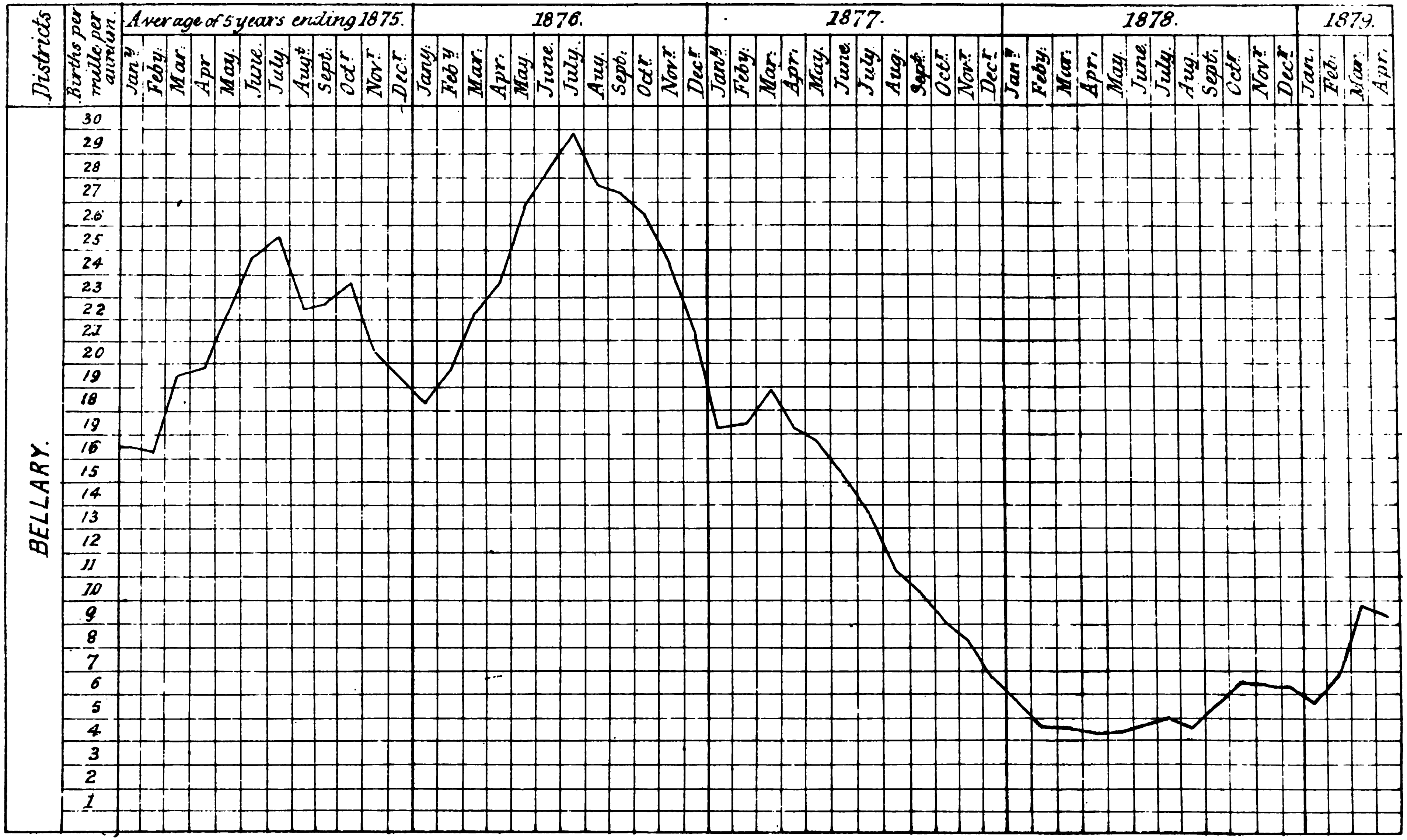
2

DIAGRAM *showing the Birth rate per mille per annum in the district of* **CHINGLEPUT** *in 1876, 1877, 1878 & 1879. compared with the average of 5 previous years ending 1875.*



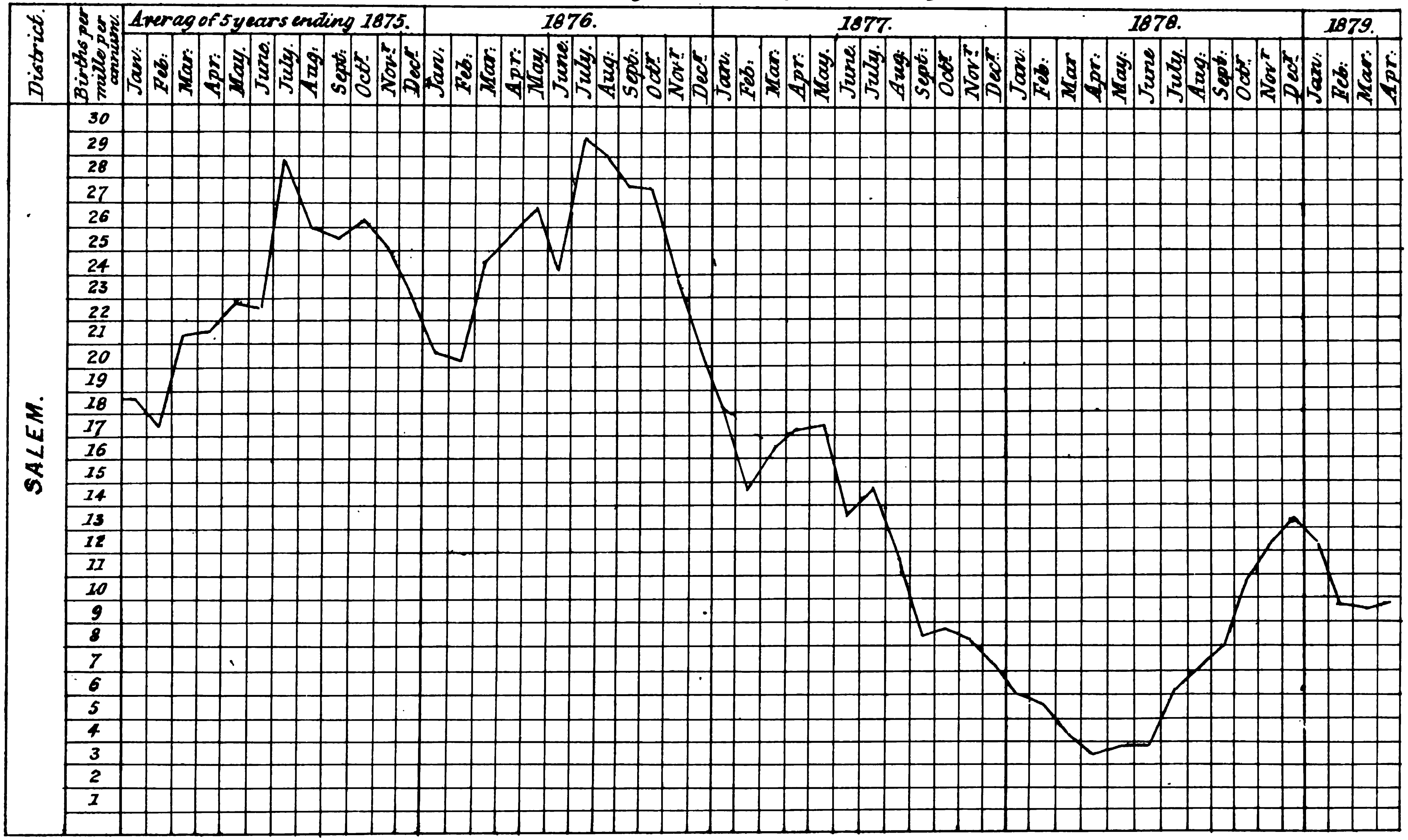
Digitized by Google

DIAGRAM showing the Birth rate per Mille per annum in the district of BELLARY in 1876, 1877, 1878 and 1879, compared with the average of 5 previous years ending 1875.



Digitized by Google

DIAGRAM showing the Birth rate per Mille per annum in the district of SALEM in 1876, 1877, 1878 and 1879, compared with the average of 5 previous years ending 1875.



proportion has reference to the aggregate population of both sexes and all ages; and undoubtedly any increase or decrease in the birth-rate so calculated implies increase or diminution of fertility amongst the female population of child-bearing ages who are in a position to become mothers.

According to our census returns of 1871 of 1,000 units of population about 500 in round numbers would be males, and of the 500 females only 225 or 45 per cent. would be of ages from 12 to 38, or in a condition to bear children. Of these a certain proportion would be sterile, widowed, or in circumstances not contributing to the increase of population. Deducting one-third for these causes, there would remain 150 women to produce 30 children annually, or 20 per cent. of pregnancies in a year.

This calculation is probably an under-estimate of the fertility of Indian women, for I find among the wives of our European troops in this Presidency, of whom we have accurate statistics, that an aggregate annual strength of 2,972 women produced 667 children or abortions, which would give an annual ratio of pregnancies to strength of 22·1 per cent. Whatever may be the actual proportion of pregnant women in an Indian population in ordinary times, the figures just given afford the means of comparing the condition of women on famine relief with that of soldiers' wives, or Indian females whose fertility is in the proportion of 30 births per mille of the aggregate population. The figures in the annexed table have been compiled from the returns of Sanitary Inspectors specially engaged in inspecting and reporting on the condition of the people receiving famine relief.

Table showing proportion of Pregnant Women in Famine Camps or Relief Works.

Districts.	Name of Sanitary Inspecting Officer.	Number of Women examined in Camps and Relief Works.	Number of Women Pregnant.	Percentage of Pregnant Women.
Cuddapah	Surgeon C. J. McNally ..	21,951	272	1·2
Bellary	" B. H. Williams ..	2,185	22	1·0
Nellore	" A. J. Sturmer ..	15,110	206	1·3
Madura	" J. Maitland ..	3,296	15	0·4
Coimbatore	" Rogers-Harrison ..	1,683	2	0·1

These observations no doubt included women beyond the child-bearing period, but the testimony of these reporters is amply confirmed by my own observation, and by the experience of officials engaged on famine relief.

I have now demonstrated, both from the birth registers and from actual inspection and observation of women, the remarkable impairment of the reproductive functions that takes place in the famine-stricken, and inasmuch as these causes continue to operate for a long period after a food dearth has passed away, it is evident that this important effect of famine can no longer be ignored. But for the system of birth registration in Madras, and the special inquiries instituted by me to test the accuracy of my early observations in regard to this subject, the truth would have been still hidden or left in doubt. It has now passed beyond the domain of theory and must in future be regarded as one of the most important results of famine on growth of population.

Normal increase of population in India.

It is of some importance to ascertain the normal growth of population in Indian communities, but owing to the method in which census operations were conducted prior to the Imperial census of 1871, it is very difficult to obtain any satisfactory data for establishing what the normal rate of increase is. The peculiarity of an Indian population is that, as a rule, all females arriving at the age of puberty are in a position to become mothers. Infant marriages are the rule, and it is accounted a family disgrace for a daughter to arrive at maturity without being sought in marriage. On the other hand, amongst certain castes, especially of Brahmans, traders and some of the agriculturists, widows are not permitted to re-marry, and if

Digitized by Google

they sink into the position of concubines, are disgraced by bearing children. There can be no doubt that in ordinary seasons of cheap and abundant food, the birth-rate of an Indian population is high. Even with our imperfect means of registration, the annual birth-rate in certain towns in ordinary years has been ascertained to be from 50 to 60 per mille of population.

The earliest census of the Madras Presidency, which did not then include the district of Kurnool, but took in the population of North Canara, since transferred to the Bombay Presidency, was made in the year 1822. The next sixteen years later, in 1838. In 1851 the Government of India inaugurated a system of quinquennial censusing of the population, under the direction of the Revenue authorities, and these periodical stock-takings of the people were made in 1851, 1856, 1861, and 1867. The last census, which was of an Imperial character, was taken in 1871.

The following table shows the results of the various census operations, with the percentage of increase of population :—

Years.		Population.	Annual Ratio of Increase.	Remarks.
1822	..	13,476,923	..	
1838	..	13,967,391	0·22*	* In eight districts affected by the famine of 1833-34 the population had decreased since 1822.
1851-52	..	22,031,697	4·3	
1856-57	..	22,857,855	0·74†	† In 1853-54 drought, scarcity, and cholera affected the population.
1861-62	..	24,659,509	1·9	
1866-67	..	26,539,052	1·5‡	‡ Famine in Northern Districts of Ganjam and in Bellary in 1866.
1871	..	31,597,872	3·8 §	§ The last census included populations not previously counted of about one million.

Effects of Famine of 1833-34 on the growth of Population.

It is not pretended that the earlier census operations of 1822 and 1838 were strictly accurate. In both it is probable that uncivilised tracts and some private estates were omitted. But the remarkable fact comes out that the famine of 1833-34, which was not so widespread as that of 1877, practically arrested all development of population in the area affected, for a period of four years after the famine had ended. In the area now included in the Godavari, Kistna, Nellore, Cuddapah, Chingleput, North Arcot, Madura, and Salem Districts, the famine of 1833-34 so reduced the people that in the census of 1838 they were fewer by 1,153,500 souls than they were ascertained to be sixteen years before.

Whatever increment of population had accrued from 1822 to the famine year, had been swept away, *plus* 1,153,500.

On the other hand in ten districts there had been a total gain in population of 1,644,000, but in three of these the gain was so small as to indicate that the famine had interfered with normal development.

From 1834 to 1876 the circumstances of the population have not been affected by any general calamity of the nature of famine, although there was local distress and scarcity in the years 1853 and 1866. We see therefore that from 1851, when the Revenue Board began their quinquennial census operations, the increase of population up to the census of 1871 has been steady and progressive.

I have assumed that in 1851 various scattered populations amounting to one million were not counted, and that the total population in that year was, in round numbers, 23 millions instead of 22 millions. In 1871 the ascertained numbers had increased to thirty-one and-a-half millions, or by 35·8 per cent. in the space of twenty years. The average annual increase therefore was at the rate of more than one and-a-half per cent.

The increase and prosperity of the people during these years moreover is borne out by the collateral evidence of the public revenue and the returns of trade and commerce :—

In 1856-57 the gross revenue of Madras was			..	£ 4,880,093
" 1861-62	do.	do.	do.	£ 6,137,239
" 1866-67	do.	do.	do.	£ 6,526,608
" 1871-72	do.	do.	do.	£ 7,125,581

Digitized by Google

If we examine the particulars of the revenue accounts, we find the following development:—

	1856-57.	1871-72.
Land	£ 3,750,000	£ 4,430,000
Customs	£ 150,000	£ 310,000
Stamps	£ 70,000	£ 390,000
Liquor	£ 230,000	£ 570,000
Salt	£ 540,000	£ 1,300,000

In fifteen years the gross revenues of the country increased by 58 per cent., while in twenty years the population had grown to the extent of 35·8 per cent.

From the date of the last general census in 1871 to the commencement of the great famine of 1876-77, the seasons had been favorable, food cheap and abundant, and public health, as measured by the absence of epidemic diseases, unusually good. There was no circumstance in fact to interfere with a normal growth of population in the five years since the general census was taken.

The Famine Census of 1878.

In certain provinces of India death registration has never yet been more than nominal. In the Behar famine of 1874, the death registration of the province was of no assistance to the Government in the estimation of mortality due to the food scarcity. In Mysore registration was so imperfect as to be of no relative value.

In Bombay the mortuary returns were considered too imperfect to be depended upon, and the Madras statistics were regarded with suspicion. The Government of India therefore determined to take a census of certain selected groups of population within the famine areas of Madras, Bombay, and Mysore, with the express view of testing the effects of the famine on population. In Bombay and Mysore the famine census was taken in January 1878. In Madras the period was delayed until the middle of March. The periods chosen for the census were in all cases too early, especially in Mysore and Madras, where the people continued to suffer from the effects of famine up to the end of 1878. In the following remarks my observations have reference to the famine census of the Madras Presidency only.

Areas selected for the Famine Census in 1878.

The areas selected in the Madras Presidency were as follows:—

Districts.	Taluks or Division censused.	Population in 1871.	
Non-Famine Areas—			
Kistna	Gudivada	87,138	726,885
Trichinopoly	Musiri	257,174	
Tanjore	Mayavaram	219,358	
Tinnevelly	Ambasamudram ..	163,215	
Famine Areas—			
Bellary	Gooty	144,568	871,061
Kurnool	Nandikotkur	101,866	
Cuddapah	Madhanapalle ..	135,468	
Nellore	Gudur	147,141	
Coimbatore	Palladum	237,808	
Chingleput	Ponneri	104,210	
Salem	The entire district ..		1,966,995
		Total censused population ..	3,564,941

In the selection of areas for the famine census, the motive was to choose such sub-divisions of districts as would fairly represent the condition of the whole district, and accordingly neither the most distressed nor the best taluks were chosen. The Salem District was selected, because that district fairly represented an area in which famine was severe. In the non-famine districts bordering on the distressed area, four taluks were chosen in order to test the condition of population where the people had not suffered actual famine, but had been affected by scarcity and high prices. No census was taken of any portion of the Madura and North Arcot Districts, in which the famine distress had been about equal to that of Coimbatore and Salem. The operations were conducted on the 14th March 1878, and special

Digitized by Google

facilities for taking a correct census of these selected localities were at hand in the number of officials temporarily placed at the disposal of the Madras Government for famine relief. In all cases preliminary arrangements had been made for the numbering of houses and division of boundaries.

The census schedules were sent to Madras for compilation, and the results were tabulated by Mr. Kalyanasundara Chettiar, who acted as my principal assistant in the Census Office in 1871.

The following are the main results of the famine census of 1878:—

Condition of the village populations.

In the four sub-divisions of *non-famine* taluks, it was found that out of 861 villages, population had increased since 1871 in 581, decreased in 274, and remained stationary in 6. In 67·4 per cent. of the villages the population had increased and in 31·8 per cent. it had declined.

In the six selected taluks of *famine* districts, out of 987 villages the population since 1871 had increased in only 191, decreased in 795, and remained stationary in one. In 19·3 per cent. of villages there was an increase of population, in 81·1 per cent. a decrease.

In the *Salem* District out of 4,565 inhabited villages there was a decrease of population as compared with the 1871 census in 3,917, an increase in 622 villages, and a stationary population in 26.

In 85·4 per cent. of the villages of this district, which was a typical one in regard to severity of distress, there was a loss of population, and a gain in only 13·6 per cent.

The following abstracts show the details for each sub-division in which the famine census was taken:—

NON-FAMINE DISTRICTS.

Abstract of Increase or Decrease of Village Populations from 1871 *to* 1878.

Censused Taluks.	Total Villages.	Villages uninhabited.	Total inhabited Villages.	Villages showing Increase of Population.	Villages showing Decrease of Population.	Villages where Population was stationary.	Percentage of Increase.	Percentage of Decrease.
Gudivada	246	40	206	153	53	...	74·2	25·7
Musiri	234	11	223	96	125	2	43·0	56·0
Mayavaram	351	8	343	272	67	4	79·5	19·5
Ambasamudrum ...	141	39—13*	89	60	29	...	69·0	32·5
Total ...	972	98—13*	861	581	274	6	67·4	31·8

FAMINE DISTRICTS.

Abstract of Increase or Decrease of Village Populations from 1871 *to* 1878.

Censused Taluks.	Total Villages.	Villages uninhabited.	Total inhabited Villages.	Villages showing Increase of Population.	Villages showing Decrease of Population.	Villages where Population was stationary.	Percentage of Increase.	Percentage of Decrease.
Gooty	158	4	154	16	138	...	10·3	84·4
Nandikotkur	101	...	101	11	90	...	10·8	89·1
Madhanapalle	105	10	95	15	80	...	15·8	84·2
Gudur	211	6	205	31	174	...	15·1	84·8
Palladum	196	3—1*	192	41	150	1	21·3	78·1
Ponneri	256	16	240	77	163	...	32·0	67·9
Total ...	1,027	39—1*	987	191	795	1	19·3	81·1

* Transferred.

Digitized by Google

Salem District. *Abstract of Increase or Decrease of Village Populations from* 1871 *to* 1878.

Taluks.	Total Villages.	Villages uninhabited.	Total inhabited Villages.	Villages showing Increase of Population.	Villages showing Decrease of Population.	Villages where Population was stationary.	Percentage of Increase.	Percentage of Decrease.
Salem	637	42	595	71	524	...	11·9	88·0
Atur	194	10	184	70	113	1	38·4	61·4
Namkal	574	60	514	92	418	4	17·8	81·3
Trichengode	598	24	574	37	535	2	6·4	93·2
Oosoor	942	176	766	74	685	7	9·6	89·4
Krishnagiri	612	101	511	50	459	2	9·7	89·8
Dharmapuri	740	183	557	73	481	3	12·8	84·8
Tirupatur	448	32	416	88	324	4	21·1	77·6
Utankarai	568	120	448	67	378	3	14·9	84·3
Total ...	5,313	748	4,565	622	3,917	26	13·6	85·8

In country towns within the famine area the population had generally decreased, unless relief works or poor-houses were in operation at the date of the census to account for any additions to population. In towns outside the famine area the populations had invariably increased. The facts in reference to the decrease of population in towns within the famine area seem to show that at the time of the census the wandering of the people had ceased, and that the census was dealing mainly with the actual population as reduced by famine.

In regard to the general results of the famine census the following facts were ascertained:—

In the *non-famine* selected divisions the population of 726,885 persons in 1871 had increased in 1878 to 771,573, notwithstanding that since the 1871 census eleven inhabited villages, containing at that time 9,480 inhabitants, had been transferred from one of the sub-divisions to another boundary. The actual increase of numbers was 44,688, or 6·1 per cent. If the villages above alluded to had not been transferred to another sub-division the increase of population in these selected areas would have been more than the estimated 7·5 per cent. for the five years before the beginning of the famine. The actual increase, allowing for these villages, was 8·2 per cent.

It must be noted that these *non-famine* areas were much overrun by wanderers from the famine tracts in 1877, and that the death-rate in that year was unusually high.

In the selected sub-divisions of six *famine districts*, the population in 1871 was 871,061; but in March 1878 these numbers had dwindled to 739,989. The total decrease of population was 131,072, or in the proportion of 15 per cent. The greatest decrease was in Cuddapah, the lowest in Chingleput. In my judgment the selected area in the Chingleput District did not fairly represent the extent of the calamity as regards the population of the whole district, nor did the area censused in Coimbatore give a high enough average for the whole district.

In the Salem District the ascertained population in 1871 was 1,966,995, but in March 1878 only 1,559,896 inhabitants were remaining. The total loss of population in this district, as compared with the results of 1871, without allowing any increment for normal growth of population up to the end of 1876, was 407,099 or 20·7 per cent. of the former population.

Digitized by Google

The following abstract table shows the results for each sub-division separately :—

Abstract Table showing Gross Increase or Decrease of Population in Censused Taluks, 1871 *and* 1878.

Taluks.	Population in 1871.	Population in 1878.	Sexes 1871.		Sexes 1878.		Increase or Decrease.		Total Increase or Decrease since 1871.	Percentage of Increase or Decrease since 1871.
			Males.	Females.	Males.	Females.	Males.	Females.		
Non-Famine Taluks.										
Gudivada	87,138	101,792	43,473	43,665	51,474	50,318	+ 8,001	+ 6,653	+ 14,654	+ 16·8
Musiri	257,174	266,647	120,875	133,299	130,598	136,049	+ 6,723	+ 2,750	+ 9,473	+ 3·6
Mayavaram ...	219,358	242,999	106,517	112,841	120,496	122,503	+ 13,979	+ 9,662	+ 23,641	+ 10·8
Ambasamudram* ...	163,215	160,135	77,640	85,575	76,724	83,411	— 916	— 2,164	— 3,080	— 1·8
Total ...	726,885	771,573	351,505	375,380	379,292	392,281	+ 27,787	+ 16,901	+ 44,688	+ 6·1
Six selected Famine Taluks.										
Gooty	144,568	121,630	75,238	69,330	61,689	59,941	— 13,549	— 9,389	— 22,938	— 15·8
Nandikotkur ...	101,866	81,645	52,269	49,597	41,020	40,625	— 11,249	— 8,972	— 20,221	— 19·7
Madhanapalle ...	135,468	108,179	69,102	66,366	54,737	53,442	— 14,685	— 12,924	— 27,289	— 20·1
Gudur	147,141	120,364	76,637	70,504	61,231	59,133	— 15,406	— 11,371	— 26,777	— 18·1
Palladum	237,808	207.711	117,194	120,614	101,546	106,165	— 15,648	— 14,449	— 30,097	— 12·6
Ponneri	104,210	100,460	53,204	51,006	51,117	49,343	— 2,087	— 1,663	— 3,750	— 3·5
Total ...	871,061	739,989	443,644	427,417	371,340	368,649	— 72,304	— 58,768	—131,072	+ 15·0
Salem District.										
Salem	393,805	317,456	194,960	198,845	155,200	162,256	— 39,760	— 36,589	— 76,349	— 19·4
Atur	164,006	153,789	80,256	83,750	73,786	80,003	— 6,470	— 3,747	— 10,217	— 6·2
Namkal	261,009	223,737	127,880	133,129	107,230	116,507	— 20,650	— 16,622	— 37,272	— 14·3
Trichengode ...	249,678	173,179	125,220	124,458	85,646	87,533	— 39,574	— 36,925	— 76,499	— 30·7
Oosoor	193,037	137,481	97,276	95,761	66,862	70,619	— 30,414	— 25,142	— 55,556	— 28·3
Krishnagiri ...	170,233	126,014	85,032	85,201	60,851	65,163	— 24,181	— 20,038	— 44,219	— 25·9
Dharmapuri ...	190,626	143,421	95,080	95,546	68,894	74,527	— 26,186	— 21,019	— 47,205	— 24·8
Tirupatur	190,800	168,399	93,812	96,988	81,522	86,877	— 12,290	— 10,111	— 22,401	— 11·7
Utankarai ...	153,801	116,420	75,986	77,815	56,497	59,923	— 19,489	— 17,892	— 37,381	— 24·3
Total ...	1,966,995	1,559,896	975,502	991,493	756,488	803,408	— 219,014	—188,085	—407,099	— 20·7

Sexes.

One result of famine was to cause greater wandering of the male population of the famine area. In the early period of distress the men and boys left their villages in large numbers, flocking to food markets and centres of relief works. They exhausted their energies sooner than the females, and so far as the statistics of our famine hospitals and camps go, died in a ratio of about 20 per cent. in excess of the females. It was a point therefore to investigate in what degree the proportions of the sexes, as ascertained in 1871, had been disturbed by the events of the famine.

In the *non-famine* districts the ascertained proportion of females to males in 1871 was 106·1 females to 100 males. In 1878 this proportion had diminished to 103·4 females to 100 males.

It seems probable therefore that to the extent of 3·4 per cent., the male population of these contiguous districts of the famine area had been increased by the migration, temporary or permanent, of males from the distressed districts.

In the six sub-divisions of *famine* districts where the census was taken, the females in 1878 were in the proportion of 96·3 per 100 males. In 1878 the proportion had increased to 99·3 per 100, showing, probably, a disappearance of males in the famine area of 3 per cent. beyond that of the female population.

In the Salem District the proportion of the sexes in 1871 was 101·6 females to 100 males. In 1878 the proportion had increased to 106·2 females to 100 males, so that in this district the male population seems to have disappeared in the ratio of 4·6 per cent. more than the females.

I do not lay much stress on these points in reference to the disproportion of the sexes, because some of the discrepancy may be due to imperfect numbering of the females in 1871. In India the censusing of females is beset with difficulties, in some parts of the country more than in others; but, allowing for errors in counting females, we have the direct evidence of our famine relief camps that the mortality was greater, in proportion to strength, amongst males than females; and it is a fair inference that as the males wandered more and died in larger proportion than females, the famine census substantially represents the changed proportion of the sexes.

* In this taluk eleven inhabited villages, containing a population of 9,489, were transferred to other taluks since 1871, and the transfer accounts for the decrease of population in 1878.

Digitized by Google

The following abstract table shows the particulars in regard to sexes :—

Table showing the Number of Males and Females at each Census, with proportion of Females to Males in each Taluk.

—	1871.			1878.		
	Males.	Females.	Proportion of Females to Males.	Males.	Females.	Proportion of Females to Males.
Non-famine Taluks.						
Gudivada	43,473	43,665	100·4	51,474	50,318	97·7
Mayavaram	106,517	112,841	105·9	120,496	122,503	101·6
Musiri	123,875	133,299	107·6	130,598	136,049	104·1
Ambasamudram	77,640	85,575	110·2	76,724	83,411	108·6
Total ..	351,505	375,380	106·8	379,292	392,281	103·4
Six selected Famine Taluks.						
Gooty	75,238	69,330	92·1	61,689	59,941	97·1
Nandikotkur	52,269	49,597	94·8	41,020	40,625	99·0
Gudur	76,637	70,504	91·9	61,231	59,133	96·5
Palladum	117,194	120,614	102·9	101,546	106,165	104·5
Ponneri	53,204	51,006	95·8	51,117	49,343	96·5
Madhanapalle	69,102	66,366	96·0	54,737	53,442	97·6
Total ..	443,644	427,417	96·3	371,340	368,649	99·3
Salem District.						
Salem	194,960	198,845	101·9	155,200	162,256	104·5
Atur	80,256	83,750	104·1	73,786	80,003	108·4
Namkal	127,880	133,129	104·1	107,230	116,507	108·6
Trichengode	125,220	124,458	99·3	85,646	87,533	102·2
Oosoor	97,276	95,761	98·4	66,862	70,619	105·5
Krishnagiri	85,032	85,201	100·1	60,851	65,163	107·0
Dharmapuri	95,080	95,546	100·4	68,894	74,527	108·1
Tirupatur	93,812	96,988	103·3	81,522	86,877	106·5
Utankarai	75,986	77,815	102·4	56,497	59,923	106·0
Total ..	975,502	991,493	101·6	756,488	803,408	106·2

Comparison of ages of the populations of 1871 and 1878.

The ascertained losses of the population do not admit of question. But theories have been advanced that a large proportion of the missing people may have temporarily moved away to more favored localities, and that the death harvest of famine has not been so plentiful as the bare figures would seem to imply. A certain degree of doubt has been thrown upon the famine census figures by the adoption of the migration theory, and it is therefore a matter of some importance to investigate known facts in regard to the movement of population.

Every one admits that during the height of the famine the laboring poor, destitute of work and food, forsook their village homes to an enormous extent. Our towns and relief centres were for months together crowded with wanderers; but this fact was ascertained, that the population movement was in definite directions. The districts surrounding Madras sent their starved poor chiefly in the direction of the Presidency town. From Coimbatore the people went over to the Malabar District or to Trichinopoly. From Salem they wandered into Trichinopoly and Tanjore. From Kurnool and the northern part of Nellore they migrated to the fertile delta of the Kistna river. From Madura and Tinnevelly they passed over in double the usual numbers to Ceylon in search of work on the coffee estates, or to the coffee estates on the Travancore Hills. In Madras out of some 130,000 persons received in relief camps, scarcely a dozen came from the Salem District. The great bulk of the people were from Nellore, Chingleput and North Arcot. In Bellary and Cuddapah, during the worst of the famine period, attempts were made to encourage emigration from those districts to the Buckingham Canal works on the sea-coast of the Nellore District, but this line of migration being out of the

Digitized by Google

usual course, and across a barren mountain range, the experiment had ultimately to be abandoned as unsuccessful and full of disaster to the people. All natural movements of population were in definite directions, and the causes of movement were the chances of finding food and work, especially the former.

The area in Madras over which famine was severe included a population of about twenty millions. If any one will examine a map of Southern India, it will be evident that the only chance of the people getting food and succour was by movement either to the Presidency town on the *east* coast, to the Kistna and Godavari Districts on the *north*, to the Malabar District or Travancore on the *west*, or to Trichinopoly and Tanjore, the great irrigated delta of the Cauvery, on the *south*. They could not invade Mysore, because famine had the whole of that country in its grip. Nor could the people of the Bellary and Kurnool Districts move into Bombay territory or the Nizam's Dominions, as those countries were actually worse off than our own, and thousands of the Nizam's and Mysore people came into Bellary for work and relief. These were unquestionably the lines of migration up to the beginning of September 1877, when the seasons having become favorable for agriculture, those of the people who had strength left to work began to move homeward; and before the end of the year the great surplus of migrants, including those who went to Ceylon and Travancore, had returned to their villages. The distribution of the Mansion House Fund exercised a considerable influence in hastening the resumption of village life. Grants were made for the repair of houses, for purchase of implements, seed-grain, cattle, &c.

But to show how little the migration theory helps to account for the disappearance of population it is necessary to refer to the ages of the people, as ascertained in the famine census and as compared with the results of 1871.

All that was attempted in regard to ages in the partial census of 1878 was to ascertain the numbers living above and below 10 years of age. The result of this investigation shows that in the famine area the children under 10 years of age had disappeared in nearly double the proportion of persons of greater ages, the ratios being 25·5 per cent for children, and 13·7 per cent. for those above 10 years of age.

Now children under 10 years of age are not likely to have migrated in an undue proportion to other classes of the population. The greater loss amongst them is most certainly due to death and to a diminished birth-rate in the famine period, and as the greatest loss occurred amongst the young, the migration theory unquestionably fails to explain the decrease of population. The following abstract table shows the numbers and proportions of the population in 1871 and 1878 above and below 10 years of age.

It will be seen how in every sub-division of a famine district, the heaviest proportional loss of population has been amongst children under 10 years of age :—

Digitized by Google

Table showing Population of 1871 *and* 1878 *classified according to Age.*

Taluks.	Male Population. Total Male Population in 1871.	Male Population. Total Male Population in 1878.	Male 1871. Above 10 years.	Male 1871. Below 10 years.	Male 1878. Above 10 years.	Male 1878. Below 10 years.	Male Increase or Decrease in 1878. Above 10 years.	Male Increase or Decrease in 1878. Below 10 years.	Male Proportion of Increase or Decrease per cent. Above 10 years.	Male Proportion of Increase or Decrease per cent. Below 10 years.	Female Population. Total Female Population in 1871.	Female Population. Total Female Population in 1878.	Female 1871. Above 10 years.	Female 1871. Below 10 years.	Female 1878. Above 10 years.	Female 1878. Below 10 years.	Female Increase or Decrease in 1878. Above 10 years.	Female Increase or Decrease in 1878. Below 10 years.	Female Proportion of Increase or Decrease per cent. Above 10 years.	Female Proportion of Increase or Decrease per cent. Below 10 years.
Non-famine Taluks.																				
Gudivada	43,473	51,474	29,432	14,041	34,215	17,259	+ 4,783	+ 3,218	+ 16·2	+ 22·9	43,665	50,318	28,707	14,958	33,549	16,769	+ 4,844	+ 1,811	+ 16·8	+ 12·1
Musiri	123,875	130,598	82,996	40,879	87,650	42,948	+ 4,654	+ 2,069	+ 5·6	+ 5·1	133,299	136,049	90,420	42,879	95,291	40,758	+ 4,871	− 2,121	+ 5·3	− 4·9
Mayavaram ...	106,517	120,496	71,516	35,001	83,317	37,179	+ 11,801	+ 2,178	+ 16·5	+ 6·2	112,841	122,508	76,832	36,009	85,907	36,596	+ 9,075	+ 587	+ 11·8	+ 1·6
Ambasamudram ...	77,640	76,724	52,085	25,555	51,740	24,984	− 345	− 571	− 0·6	− 2·2	85,575	83,411	58,587	26,988	57,973	25,438	− 614	− 1,550	− 1·0	− 5·7
Total ...	351,505	379,292	236,029	115,476	256,922	122,370	+ 20,893	+ 6,894	+ 8·8	+ 5·8	375,383	392,281	254,546	120,834	272,720	119,561	+ 18,176	− 1,273	+ 7·1	− 1·0
Six Famine Taluks.																				
Gooty	75,238	61,689	52,682	22,556	43,380	18,309	− 9,302	− 4,247	− 17·7	− 18·8	69,330	59,941	48,142	21,188	42,139	17,802	− 6,003	− 3,386	− 12·4	− 15·9
Nandikotkur ...	52,269	41,020	34,927	17,342	30,009	11,011	− 4,918	− 6,331	− 14·1	− 36·5	49,597	40,625	33,044	16,553	30,210	10,415	− 2,834	− 6,138	− 8·5	− 37·0
Madhanapalle ...	69,102	54,787	48,470	20,632	38,290	16,447	− 10,180	− 4,185	− 21·0	− 24·1	66,366	53,442	44,277	22,089	37,633	15,809	− 6,644	− 6,280	− 15·0	− 28·4
Gudur	76,637	61,231	52,809	23,828	44,471	16,760	− 8,338	− 7,068	− 13·9	− 29·6	70,504	59,183	46,498	24,006	42,933	16,200	− 3,565	− 7,806	− 7·6	− 32·5
Palladum	117,194	101,546	77,130	40,064	67,955	33,591	− 9,175	− 6,473	− 11·9	− 16·1	120,614	106,165	79,657	40,957	72,942	33,223	− 6,715	− 7,734	− 8·4	− 18·8
Ponneri	53,204	51,117	34,998	18,206	34,257	16,860	− 741	− 1,346	− 2·1	− 7·3	51,006	49,343	32,654	18,352	33,389	15,954	+ 735	− 2,398	+ 2·2	− 13·0
Total ..	443,644	371,340	301,016	142,628	258,362	112,978	− 42,654	− 29,650	− 14·1	− 20·8	427,417	368,649	284,272	143,145	259,246	109,403	− 25,026	− 33,742	− 8·8	− 23·5
Salem District.																				
Salem	194,960	155,200	127,422	67,538	106,805	48,395	− 20,617	− 19,143	− 17·1	− 28·3	198,845	162,256	131,943	66,902	114,735	47,521	− 17,208	− 19,381	− 13·0	− 40·7
Atur	80,256	73,786	52,453	27,803	49,392	24,394	− 3,061	− 3,409	− 5·8	− 12·3	83,750	80,003	55,488	28,262	55,061	24,942	− 427	− 3,320	− 0·7	− 11·7
Namkal	127,880	107,230	83,580	44,300	72,004	35,226	− 11,576	− 9,074	− 13·8	− 20·4	133,129	116,507	88,344	44,785	81,555	34,952	− 6,789	− 9,833	− 7·6	− 21·9
Trichengode ...	125,220	85,646	81,841	43,379	58,225	27,421	− 23,616	− 15,958	− 28·8	− 36·8	124,458	87,533	80,300	44,158	60,171	27,362	− 20,129	− 16,796	− 25·0	− 38·0
Oosoor	97,276	66,862	63,577	33,699	48,134	18,728	− 15,443	− 14,971	− 24·3	− 44·4	95,761	70,619	65,653	30,108	51,651	18,968	− 14,002	− 11,140	− 21·3	− 37·0
Krishnagiri ...	85,032	60,851	55,575	29,457	39,991	20,860	− 15,584	− 8,597	− 28·0	− 29·2	85,201	65,163	53,898	31,303	44,078	21,085	− 9,820	− 10,218	− 18·2	− 32·6
Dharmapuri ...	95,080	68,894	62,142	32,938	46,087	22,807	− 16,055	− 10,131	− 25·8	− 30·7	95,546	74,527	60,925	34,621	51,601	22,926	− 9,324	− 11,695	− 15·3	− 33·7
Tirupatur	93,812	81,522	61,320	32,492	53,896	27,626	− 7,424	− 4,866	− 12·1	− 14·9	96,988	86,877	61,298	35,690	59,782	27,095	− 1,516	− 8,595	− 2·4	− 24·0
Utankarai ...	75,986	56,497	49,662	26,324	39,621	16,876	− 10,041	− 9,448	− 20·2	− 35·9	77,815	59,923	50,120	27,695	43,093	16,830	− 7,027	− 10,865	− 14·0	− 39·2
Total ...	975,502	756,488	637,572	337,930	514,155	242,333	123,417	− 95,597	− 19·3	− 28·2	991,493	803,408	647,969	343,524	561,727	241,681	− 86,242	− 101,843	− 13·3	− 29·6

Digitized by Google

In the famine census no attempt was made to ascertain the castes, or occupations of the survivors of the famine. Beyond counting the sexes, and the numbers above and below ten years of age, it was not considered advisable to attempt any elaborate enquiry in regard to the social condition of the survivors. The object of the census was mainly to test the effects of the famine, and to correct the defects of the birth and death registration. I believe the census was taken with a very fair approach to accuracy, and that the results may be accepted as substantially representing the condition of the affected districts, before they had entirely recovered from the disaster occasioned by the food dearth. In March 1878, the death-rate, as estimated by the registration, was considerably higher than normal, and the birth-rate exceedingly low, so that the full losses of the famine cannot be accurately measured until the results of the next general census of the population in 1881 are made known.

The facts in reference to the supposed migration of the people, as explaining the disappearance of population in the censused areas, have been amply confirmed in 1878 and 1879. If the people had permanently located themselves in centres where work was to be had, there would have been no complaint of want of laborers; but in our coffee and tea districts, which recruit their labor supply from the low country,there has been a remarkable scarcity of labor in 1878 and 1879, and this result is no doubt attributable to the excessive mortality of the laboring classes during the famine period.

It is not practicable to say with precision what particular castes or sections of the people suffered most. But the experience of famine relief officers showed that the great out-caste or Pariah tribes, and the lower divisions of the Hindu agricultural castes were the chief victims. The Brahmans and trading castes of Hindus suffered but little or not at all. No particulars in regard to the mortality of the several castes are recorded, but it is important to note that the death-rate of Mahomedans in 1877 was only 38·8 per mille, while of Hindus and out-castes it was 54·2 per mille.

Comparison of losses in 1877 and 1833 Famines.

It is a matter of some interest to note how far the arrest of development of population in the famine of 1833-34 supports the view that upwards of three millions of people disappeared in the more widely distributed famine of 1877.

We have already seen that the growth of population for the whole Presidency in the 16 years from 1822 to 1838 was only about half a million, but in only *ten* of the districts was there an increase, while in the area of country affected by the famine of 1833-34 (eight districts) there was a sensible loss of population.

In the districts showing increase, the population had grown in excess of the estimated 1½ per cent. per annum, except in two of the divisions which suffered from the famine. Taking the aggregate actual increase in these ten districts, the results agree very closely with the "estimated" increase as will be seen in the following table:—

Districts where Population increased from 1822 to 1838.

Districts.	Population in 1822.	Actual Population in 1838.	Calculated Population for 1838 with increment of 1½ per cent. for 16 years.	Actual Increase in 1838.	Calculated Increase.
Ganjam	332,015	438,174	411,695	106,159	79,680
Vizagapatam	772,570	1,047,414	957,962	274,844	185,392
Bellary	927,857	1,129,907	1,150,529	202,050	222,672
South Arcot	455,020	484,800	564,220	29,780	109,200
Tanjore	901,353	1,128,730	1,117,657	227,377	216,304
Trichinopoly	481,292	485,242	596,780	3,950	115,488
Tinnevelly	564,957	850,891	700,525	285,934	135,568
Coimbatore	638,199	783,392	791,335	145,193	153,136
Canara	657,594	768,123	815,386	110,529	157,792
Malabar	907,575	1,165,791	1,125,367	258,216	217,792
Total ..	6,638,432	8,282,464	8,231,456	1,644,032	1,593,024

Digitized by Google

From this table we see that the population in 16 years had grown from 6,638,432 to 8,282,464, while the estimated increase was 8,231,486.

If we consider now the condition of the districts affected by the famine of 1833-34, we shall be able to form an opinion as to the probable losses of population from that calamity.

The numbers in these districts in 1822 were 6,376,440. The census of 1838 showed only 5,222,880 remaining, or an actual decrease of 1,153,650 persons.

But if the population had grown in these districts up to 1833 (the famine year) in the same proportion that it grew in other districts, there would have been 7,428,458 inhabitants exposed to famine influences, and the gross decrease of population therefore caused by the famine of 1833-34 was upwards of two millions, (2,205,578). It is abundantly clear that in parts of the country not exposed to famine influences, the population increased beyond the estimated one and half per cent. from 1822 to 1838.

In the following table the calculation has only been made to the date of the famine year, from which time it is evident that all normal increase of population was arrested, and the census taken four years later showed that up to that time there had been no recovery from the check sustained in 1833-34:—

Districts where Population decreased from 1822 *to* 1838.

Districts.	Population in 1822.	Actual Population in 1838.	Calculated Population for 1833, with increment of 1½ per cent. for 11 years.	Actual Decrease in 1838.	Calculated Increase up to 1834 adding 1½ per cent. for 11 years.
Godavari	738,308	695,016	860,122	43,292	121,814
Kistna	984,603	812,098	1,147,062	172,505	162,459
Nellore	439,467	328,726.	511,968	110,741	72,501
Cuddapah	1,094,460	1,081,261	1,275,036	13,199	180,576
Chingleput	363,129	331,821	423,035	31,308	59,906
North Arcot	892,292	523,248	1,039,505	369,044	147,213
Madura	788,196	552,477	918,227	235,719	130,031
Salem	1,075,985	898,233	1,253,503	177,752	177,518
Total ..	6,376,440	5,222,880	7,428,458	1,153,560	1,052,018

If in the partial famine of 1833-34 upwards of two millions of the population disappeared, it is no cause for surprise that the greater calamity of 1877, extending over fourteen revenue districts and populations of considerable density, should have destroyed more than three millions; the probabilities are that but for the efforts made to battle with the famine, and the liberal relief afforded by Government, the losses of population would have been nearer five millions than three.

Allowing for the natural increment of population from 1822 to 1833, the proportion of decrease in the affected districts in the famine of 1833 was probably as follows:—

Godavari	19·1 per cent.
Kistna	29·2 „
Nellore	35·7 „
Cuddapah	15·1 „
Chingleput	21·5 „
North Arcot	49·6 „
Madura	39·8 „
Salem	28·3 „

History records how terrible was the famine of 1833-34 in Nellore, Kistna, and Godavari; and in the Guntoor division of the Kistna District it was estimated at the time that from 40 to 50 per cent. of the population had died; but the figures

Digitized by Google

above given seem to show that the famine was equally or more fatal in North Arcot, Salem, and Madura.

Estimated decrease of population in Madras.

In estimating the actual loss of population, it would be manifestly unfair to ignore the experience of former census operations in regard to the normal growth of population. From November 1871 to the end of 1876 there were no circumstances to interfere with the customary increase of population; on the contrary Southern India had been remarkably free of epidemic disease, and up to the end of 1875 food was plentiful, and in most districts cheaper than the average of former years. I have myself no doubt that the population in these five years increased in the ratio of at least one and a half per cent. per annum, but to be well within the mark I have assumed that in the five years ending 1876 the population of the famine area increased only at the rate of one per cent. per annum.

The following table will show the probable decrease of population due to the famine up to March 1878 :—

Districts.	Population in 1871.	Proportion of Loss in 1878 in censused Sub-division.	Numbers missing.	Remarks.
Salem District	1,966,995	20·7	407,099	Actual.
Bellary	1,668,006	15·8	263,544	Calculated on census of sub-division.
Kurnool	959,640	19·7	188,049	
Cuddapah	1,351,194	20·1	271,589	
Nellore	1,376,811	18·1	249,202	
Coimbatore	1,763,274	12·6	222,172	
Chingleput and Madras ..	1,335,736	3·1	41,407	
Madura	2,266,615	10·0	226,661	No census; district suffered nearly as much as Coimbatore.
North Arcot	2,015,278	20·0	403,055	No census; district suffered equally with Salem.
DISTRICTS OF PARTIAL FAMINE.				
South Arcot (four distressed taluks)	817,223	5·0	40,861	No census; these proportions are estimated on the distressed taluks only, where the death-rates were excessive.
Tinnevelly (three taluks) ..	630,192		31,509	
Trichinopoly (two taluks) ..	544,354		27,217	
Kistna (six taluks)	563,972		28,198	
	17,259,290	Total ..	2,400,567	
Add for five years' increment of population of the affected areas from 1872 to 1876 at one per cent. per annum ..			862,960	
			3,273,527	

These calculations would give at the least 3¼ millions as the loss by famine, but as the famine census was taken before the famine distress was ended, and before the birth-rate had resumed its normal proportions, it must be evident that the actual loss of population is considerably in excess of the numbers here calculated. During the years 1878 and 1879 I travelled through a considerable portion of the famine area and found that ruined houses abounded in almost every village, and that the former residents of such had died or disappeared. The area of land under grain cultivation has not come up to what it was before the famine, and the scarcity of labor in the districts where money wages are offered by planters shows that a very severe blow has been dealt to the population. In the two years 1877 and 1878 moreover we have actually registered 1,318,673 more deaths, and 444,780 fewer births than the mean of two years' previous registration, and these figures alone show a decrease of population in two years of 1,763,453 in the Madras Presidency, so that the data afforded by the census of selected areas renders it but too probable that the actual losses of population in this Presidency alone, from causes connected with the famine, have not fallen short of three millions.

Digitized by Google

CONCLUDING REMARKS.—In this paper I have attempted to show how famine affects a population by causing excessive mortality of the living, and by hindering for the time being the reproduction of the species.

The normal growth of population depends on reproduction exceeding loss or decay, and we have seen that one of the most important influences of actual food dearth in a country is to impair the normal fertility of the people, while the inadequacy of the food supplies causes an excessive mortality in the existing population. A high death-rate and low birth-rate continuing for a prolonged period must necessarily exercise a powerful influence on the growth of population. Such causes have been in operation in the Madras Presidency and other provinces in India during 1877 and 1878, and it will be a matter of profound interest to note to what extent these causes have checked population when the next great census of 1881 is taken.

(Signed) W. R. CORNISH, F.R.C.S.,
Sanitary Commissioner for Madras.

MADRAS,
1st *June* 1879.

Digitized by Google

APPENDIX III.

VITAL STATISTICS OF THE GENERAL POPULATION.

Digitized by Google

I.

Births registered in the Districts of the Madras Presidency during the Year 1878.

1	2			3	4			5			6			7	8	9
No.	Population according to the Census of 1871.			Districts.	Population for which Returns were received.			Number of Births registered.			Ratio of Births per 1,000 of Population.			Number of Males born to every 100 Females born.	Excess of Births over Deaths per 1,000 of Population.	Excess of Deaths over Births per 1,000 of Population.
	Males.	Females.	Total.		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			
1	695,090	693,529	1,388,619	Ganjam	502,184	500,280	1,002,464	8,555	7,320	15,875	17·03	14·6	15·8	116·8	...	3·4
2	940,515	902,988	1,843,503	Vizagapatam	786,406	758,123	1,544,529	11,212	10,893	22,105	14·2	14·3	14·3	102·9	...	3·8
3	803,149	788,954	1,592,103	Godavari	803,149	788,954	1,592,103	15,273	14,754	30,027	19·01	18·7	18·8	103·5	...	18·6
4	737,319	714,747	1,452,066	Kistna	737,319	714,747	1,452,066	10,995	10,224	21,219	14·9	14·3	14·6	107·5	...	14·2
5	707,222	669,261	1,376,483	Nellore	707,222	669,261	1,376,483	2,559	2,378	4,937	3·6	3·5	3·6	107·6	...	24·6
6	186,596	195,330	381,926	Madras	186,596	195,330	381,926	7,647	7,032	14,679	40·9	36·0	38·4	108·7	...	8·7
7	473,828	460,695	934,523	Chingleput	473,828	460,695	934,523	7,320	6,918	14,238	15·4	15·01	15·2	105·8	...	2·9
8	885,665	869,659	1,755,324	South Arcot	885,665	869,659	1,755,324	9,249	8,706	17,955	10·4	10·01	10·2	106·2	...	12·9
9	587,390	611,765	1,199,155	Trichinopoly	587,390	611,765	1,199,155	8,931	8,575	17,506	15·2	14·01	14·6	104·1	...	9·6
10	953,492	1,019,328	1,972,820	Tanjore	953,492	1,019,328	1,972,820	25,027	23,699	48,726	26·2	23·2	24·7	105·6	...	3·7
11	1,111,880	1,154,394	2,266,274	Madura	656,966	672,241	1,329,207	5,627	4,297	9,924	8·5	6·4	7·4	130·9	...	16·7
12	836,332	857,297	1,693,629	Tinnevelly	836,332	857,297	1,693,629	12,271	11,357	23,628	14·6	13·2	13·9	108·0	...	8·5
13	467,517	446,716	914,233	Kurnool	467,517	446,716	914,233	1,601	1,472	3,073	3·4	3·3	3·3	108·7	...	44·7
14	693,280	657,687	1,350,967	Cuddapah	693,280	657,687	1,350,967	2,921	2,860	5,781	4·3	4·3	4·3	102·1	...	36·4
15	858,649	807,166	1,665,815	Bellary	858,649	807,166	1,665,815	4,440	4,204	8,644	5·1	5·2	5·1	105·6	...	40·6
16	1,020,119	994,135	2,014,254	North Arcot	1,020,119	994,135	2,014,254	7,489	7,034	14,523	7·3	7·1	7·2	106·4	...	18·0
17	975,140	991,222	1,966,362	Salem	975,140	991,222	1,966,362	7,261	6,774	14,035	7·4	6·8	7·1	107·1	...	18·0
18	874,642	880,037	1,762,679	Coimbatore	874,642	888,037	1,762,679	6,618	5,883	12,501	7·5	6·6	7·1	112·5	...	9·6
19	38,366	34,030	72,396	Nilgiris	38,366	34,030	72,396	465	478	943	12·1	14·04	13·02	97·2	...	13·5
20	459,550	458,492	918,042	South Canara	459,550	458,492	918,042	8,098	7,984	16,082	17·6	17·4	17·5	101·4	...	18·9
21	1,117,573	1,110,655	2,228,228	Malabar	1,117,573	1,110,655	2,228,228	16,767	15,489	32,256	15·03	13·9	14·4	108·2	...	4·7
	15,423,314	15,326,087	30,749,401	Total Madras Presidency.	14,621,385	14,505,820	29,127,205	180,326	168,331	348,657	12·3	11·6	11·9	107·1	...	15·9

Digitized by Google

II.

Deaths registered in the Districts of the Madras Presidency during the Year 1878.

1	2	3	4	5			6	7			8		
No.	Districts.	Area in Square Miles.	Average Population per Square Mile.	Number of Deaths registered.			Number of Males died to every 100 Deaths of Females.	Ratio of Deaths per 1,000 of Population.			Mean Ratio of Deaths per 1,000 during previous 5 years ending 1876.		
				Males.	Females.	Total.		Males.	Females.	Total.	Males.	Females.	Total.
1	Ganjam	8,313	182·9	16,224	13,110	29,334	123·7	32·3	26·3	29·3	15·05	13·6	14·3
2	Vizagapatam	18,344	117·7	14,891	13,164	28,055	113·1	18·9	17·3	18·1	15·4	13·7	14·5
3	Godavari	6,224	255·9	31,410	28,107	59,517	111·8	39·1	35·6	37·4	19·9	18·4	19·2
4	Kistna	8,036	180·7	21,996	19,932	41,928	110·3	29·8	27·8	28·8	17·7	15·9	16·9
5	Nellore	8,462	162·7	21,598	17,174	38,772	125·7	30·5	25·7	28·2	14·5	13·2	13·9
6	Madras	27	14,724·1	9,027	8,947	17,974	100·9	48·3	45·8	47·1	35·1	33·4	34·3
7	Chingleput	2,753	340·7	8,925	8,036	16,961	111·1	18·8	17·4	18·1	19·4	19·5	19·5
8	South Arcot	4,873	360·3	21,751	18,867	40,618	115·2	24·5	21·7	23·1	17·1	16·2	16·7
9	Trichinopoly	3,515	341·5	14,576	14,456	29,032	100·8	24·8	23·6	24·2	20·2	19·3	19·7
10	Tanjore	3,654	540·1	28,137	27,886	56,023	100·9	29·5	27·3	28·4	24·7	22·9	23·8
11	Madura	9,502	238·5	17,156	14,821	31,977	115·7	26·1	22·04	24·1	12·9	11·4	12·2
12	Tinnevelly	5,176	327·3	19,316	18,653	37,969	103·5	23·1	21·7	22·4	19·9	18·01	18·9
13	Kurnool	7,358	130·4	22,343	21,589	43,932	103·5	47·7	48·3	48·0	19·1	17·8	18·4
14	Cuddapah	8,367	161·5	29,263	25,773	55,036	113·5	42·2	39·1	40·7	18·1	17·08	17·6
15	Bellary	11,007	151·5	40,387	35,750	76,137	112·9	47·03	44·2	45·7	18·4	18·8	18·6
16	North Arcot	7,139	282·3	26,566	24,314	50,880	109·2	26·04	24·4	25·2	21·2	20·9	21·1
17	Salem	7,483	262·9	24,421	25,034	49,455	97·5	25·04	25·2	25·1	22·8	20·6	21·7
18	Coimbatore	7,432	287·3	15,995	13,504	29,499	118·4	18·2	15·2	16·7	16·4	14·1	15·3
19	Nilgiris	749	66·0	1,059	870	1,929	121·7	27·6	25·5	26·6	19·5	18·4	19·0
20	South Canara	3,902	235·4	17,480	15,932	33,412	109·7	38·08	34·7	36·4	18·7	16·8	17·8
21	Malabar	6,002	376·7	23,907	18,574	42,481	128·7	21·3	16·7	19·1	18·7	15·3	17·1
	Total Madras Presidency ...	138,318	226·2	426,428	384,493	810,921	110·9	29·1	26·5	27·8	18·8	17·4	18·1

Digitized by Google

III.

~~Births~~ Deaths registered in the Districts of the Madras Presidency during each Month of the Year 1878.

1	2	3												4
No.	Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total Deaths registered during the Year.
1	Ganjam	1,707	1,754	3,254	3,098	3,106	3,415	3,041	2,799	2,360	1,903	1,400	1,497	29,334
2	Vizagapatam	2,198	1,449	2,229	1,988	1,533	2,032	2,817	2,510	1,735	4,096	2,494	2,974	28,055
3	Godavari	2,694	3,007	3,894	4,242	4,835	5,361	7,203	7,175	6,922	4,927	4,159	5,098	59,517
4	Kistna	3,024	2,121	2,301	1,936	2,112	2,443	2,482	4,506	6,326	4,988	4,578	5,111	41,928
5	Nellore	6,780	3,865	3,089	2,272	1,998	1,964	1,704	1,670	2,436	2,871	2,937	7,186	38,772
6	Madras	2,739	1,743	1,563	1,245	1,223	1,158	1,078	1,506	1,731	1,494	1,256	1,238	17,974
7	Chingleput	2,680	1,693	1,814	1,088	923	991	908	1,160	1,409	1,586	1,711	1,549	16,961
8	South Arcot	6,920	4,148	3,562	2,744	2,356	2,091	2,812	3,374	3,161	3,078	3,191	3,181	40,618
9	Trichinopoly	4,769	3,103	2,776	2,090	1,968	1,713	1,949	2,029	2,037	2,051	2,199	2,328	29,032
10	Tanjore	6,901	4,961	4,663	4,341	4,063	3,867	4,261	5,347	5,157	4,451	4,109	3,902	56,023
11	Madura	5,736	3,306	2,274	1,747	1,659	1,759	1,891	2,003	2,275	2,495	3,069	3,743	31,977
12	Tinnevelly	7,850	4,638	3,457	2,570	2,238	2,428	2,242	2,352	2,324	2,424	2,583	2,868	37,969
13	Kurnool	6,111	3,617	3,181	2,288	2,576	2,778	3,683	4,165	4,650	3,828	3,737	3,318	43,962
14	Cuddapah	10,704	6,143	5,739	4,179	3,359	3,018	4,472	3,544	3,477	3,372	3,583	3,446	55,036
15	Bellary	10,133	6,267	6,134	5,402	6,688	6,538	6,623	6,637	6,250	5,260	5,161	5,044	76,137
16	North Arcot	10,962	6,469	4,820	3,570	2,836	2,581	2,651	3,158	3,328	3,306	3,519	3,665	50,880
17	Salem	7,413	5,718	4,475	3,118	3,028	2,735	3,971	4,359	3,410	3,269	3,431	4,528	49,455
18	Coimbatore	4,178	2,958	2,844	1,919	2,000	2,224	2,270	2,421	2,256	2,021	1,906	2,507	29,499
19	Nilgiris	151	113	164	185	226	223	212	185	191	98	90	91	1,929
20	South Canara	2,816	2,323	2,222	2,144	1,955	2,456	5,622	4,954	2,861	2,069	1,810	2,180	33,412
21	Malabar	3,807	3,910	4,176	3,619	3,326	3,580	4,098	4,168	3,556	3,003	2,587	2,656	42,481
	Total Madras Presidency ...	110,243	73,301	63,131	55,785	54,027	55,355	65,985	70,017	67,852	62,590	59,530	63,105	810,921
	Ratio of Deaths per 1,000 in each Month ...	3·8	2·5	2·3	1·9	1·8	1·9	2·3	2·4	2·3	2·2	2·1	2·3	27·8

Digitized by Google

IV.

Deaths registered according to Age in the Districts of the Madras Presidency during the Year 1878.

1	2	3		4		5		6		7		8		9		10		11	
No.	Districts.	Under 1 year.		1 year and under 6.		6 years and under 12.		12 years and under 20.		20 years and under 30.		30 years and under 40.		40 years and under 50.		50 years and under 60.		60 years and upwards.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	Ganjam	1,515	1,324	1,827	1,622	1,453	1,186	1,318	1,082	1,941	1,684	2,071	1,348	1,854	1,088	1,707	1,203	2,538	2,573
2	Vizagapatam	917	860	1,407	1,380	1,155	1,094	1,219	1,047	1,581	1,479	1,973	1,508	2,129	1,666	2,237	1,888	2,273	2,242
3	Godavari	3,563	3,296	6,342	5,948	2,907	2,473	2,143	2,248	3,509	3,520	3,076	2,220	2,604	1,578	2,515	1,913	4,751	4,911
4	Kistna	1,945	1,919	3,436	3,148	1,829	1,535	1,401	1,469	2,181	2,323	1,936	1,437	1,640	1,145	2,400	1,852	5,228	5,104
5	Nellore	484	562	2,886	2,057	2,659	1,688	2,211	1,621	2,260	1,524	1,809	1,423	2,060	1,661	2,757	2,563	4,472	4,075
6	Madras	2,099	1,852	1,519	1,593	523	489	356	556	644	904	750	661	733	582	860	668	1,548	1,642
7	Chingleput	1,117	1,013	1,168	1,181	612	564	466	477	747	862	836	685	948	668	1,065	771	1,966	1,815
8	South Arcot	2,026	1,845	3,926	3,817	1,522	1,354	1,114	967	1,706	1,667	2,071	1,480	2,249	1,424	2,424	1,797	4,713	4,516
9	Trichinopoly	1,959	1,793	2,747	2,665	923	959	645	676	1,006	1,319	1,284	1,175	1,425	1,115	1,587	1,350	3,000	3,404
10	Tanjore	6,068	5,219	4,915	4,840	1,921	1,847	1,429	1,680	2,136	2,777	2,288	2,223	2,370	1,825	2,269	1,843	4,721	5,632
11	Madura	492	453	2,337	1,881	1,597	1,077	1,240	843	1,846	1,491	2,231	1,797	2,395	1,913	2,125	1,998	2,898	3,418
12	Tinnevelly	1,983	1,893	3,066	3,018	1,112	946	878	789	1,511	1,588	2,068	1,725	2,374	1,762	2,497	2,248	3,807	4,684
13	Kurnool	475	488	2,042	2,135	2,009	833	1,620	1,554	3,007	3,068	3,568	3,132	3,232	2,753	2,918	2,724	3,472	3,902
14	Cuddapah	823	778	2,251	2,279	2,267	1,987	1,719	1,658	3,583	3,562	4,681	4,496	4,639	3,408	4,297	3,473	5,008	4,132
15	Bellary	1,020	925	3,560	3,789	3,428	3,016	2,489	2,452	5,244	5,276	6,715	5,194	6,332	4,629	5,531	4,278	6,068	6,191
16	North Arcot	1,426	1,322	2,905	2,789	2,018	1,978	1,833	1,795	3,191	3,333	3,661	3,199	3,663	2,484	3,118	2,637	4,751	4,777
17	Salem	1,398	1,346	3,146	3,211	2,393	2,107	1,895	1,818	3,007	3,312	3,894	3,509	3,369	3,153	2,802	3,118	2,617	3,465
18	Coimbatore	769	770	2,022	2,020	1,283	1,037	1,082	886	2,100	1,850	2,433	1,835	2,231	1,507	1,846	1,541	2,229	2,058
19	Nilgiris	76	74	124	119	76	66	109	85	192	149	210	178	135	88	56	50	81	61
20	South Canara	1,591	1,650	2,337	2,251	1,191	1,040	1,172	1,153	2,254	2,447	2,524	1,864	2,233	1,555	1,827	1,560	2,351	2,412
21	Malabar	1,301	1,109	2,631	2,318	1,276	1,119	1,666	1,388	3,688	2,871	4,057	2,574	3,031	1,773	2,473	1,500	3,784	3,922
	Total Madras Presidency..	33,067	30,491	56,614	54,011	34,054	29,395	28,005	26,244	47,334	47,006	54,136	43,663	51,646	37,777	49,311	40,970	72,261	74,936
	Ratio per Mille of Population.	Males 28·3		Females 26·4		13·8	13·7	12·3	11·1	17·7	16·6	28·9	25·7	42·9	33·9	70·1	60·4	184·6	195·6

V.

Deaths registered according to Classes in the Districts of the Madras Presidency during the Year 1878.

1	2	3					4					5				
No.	Districts.	Population for which Returns were received.					Number of Deaths registered.					Ratio of Deaths per 1,000 of Population.				
		Native Christians.	Mahomedans.	Hindus.	Other Classes.	Total.	Native Christians.	Mahomedans.	Hindus.	Other Classes.	Total.	Native Christians.	Mahomedans.	Hindus.	Other Classes.	Total.
1	Ganjam	697	4,826	996,433	508	1,002,464	...	115	29,219	...	29,334	...	23·1	29·3	...	29·2
2	Vizagapatam	882	21,080	1,522,061	556	1,544,529	22	292	27,726	15	28,055	24·9	13·9	18·2	26·9	18·1
3	Godavari	585	35,178	1,556,005	340	1,592,108	32	567	58,918	...	59,517	54·7	16·1	37·8	...	37·4
4	Kistna	7,380	78,941	1,365,709	36	1,452,066	232	2,109	39,585	2	41,928	31·4	26·7	28·9	55·5	28·8
5	Nellore	2,653	65,670	1,308,024	136	1,376,483	43	1,049	37,680	...	38,772	16·2	15·9	28·8	...	28·2
6	Madras	21,441	50,964	808,611	910	881,926	622	1,829	15,523	...	17,974	29·0	35·9	50·8	...	47·1
7	Chingleput	11,471	23,201	899,833	18	934,523	182	286	16,492	1	16,961	15·7	12·3	18·3	55·5	18·1
8	South Arcot	30,219	44,567	1,680,323	215	1,755,324	461	588	39,497	72	40,618	15·2	13·2	23·5	334·9	23·1
9	Trichinopoly	50,822	32,024	1,115,919	390	1,199,155	1,100	555	27,377	...	29,032	21·6	17·0	24·5	...	24·2
10	Tanjore	65,262	102,703	1,804,025	830	1,972,820	1,372	2,436	52,211	4	56,023	21·0	23·7	28·9	4·8	28·4
11	Madura	27,231	48,586	1,253,175	215	1,329,207	...	907	31,070	...	31,977	...	18·7	24·8	...	24·1
12	Tinnevelly	102,249	84,753	1,506,621	6	1,693,629	2,012	1,755	34,202	...	37,969	19·6	20·7	22·7	...	22·4
13	Kurnool	3,644	100,444	810,074	71	914,233	106	4,373	39,453	...	43,932	29·1	43·5	48·7	...	48·0
14	Cuddapah	4,608	103,676	1,242,321	362	1,350,967	22	3,656	51,358	...	55,036	4·8	35·2	41·4	...	40·7
15	Bellary	3,354	127,783	1,534,550	128	1,665,815	97	4,671	71,369	...	76,137	28·9	36·5	46·5	...	45·7
16	North Arcot	6,316	86,741	1,920,909	288	2,014,254	40	974	49,866	...	50,880	6·3	11·2	25·9	...	25·2
17	Salem	12,684	52,312	1,901,088	278	1,966,362	391	868	48,196	...	49,455	30·8	16·6	25·4	...	25·1
18	Coimbatore	11,448	36,026	1,715,137	73	1,762,679	137	454	28,907	1	29,499	11·1	12·6	16·8	13·7	16·7
19	Nilgiris	2,935	1,936	67,481	44	72,396	189	89	1,651	...	1,929	64·4	45·9	24·5	...	26·6
20	South Canara	48,938	83,223	785,881	...	918,042	1,245	2,272	29,895	...	33,412	25·4	27·3	38·0	...	36·4
21	Malabar	17,998	595,899	1,612,890	1,441	2,228,228	797	10,831	30,845	8	42,481	44·3	18·2	19·1	5·5	19·1
	Total Madras Presidency ...	432,812	1,780,478	26,907,070	6,845	29,127,205	9,102	40,676	761,040	103	810,921	21·0	22·8	28·3	15·0	27·8

Digitized by Google

VI.

Deaths registered from different Causes in the Districts and Towns of the Madras Presidency during the Year 1878.

1	2	3	4	5	6	7	8					9	10	11							
No.	Districts and Towns.	Population for which Returns were received.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injuries.					All other Causes.	Total Deaths from all Causes.	Ratio of Deaths per 1,000 of Population.							
							Suicides.		Wounding and Accidents.	Snake-bite and killed by Wild Beasts.	Total.			Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injuries.	All other Causes.	Deaths.	
							Males.	Females.												For the Year.	Mean of previous 5 Years ending 1876.
	*A.—Districts.**																				
1	Ganjam	936,955	7,562	725	14,819	391	19	16	197	66	298	3,021	26,816	8·07	0·7	15·8	0·4	0·3	3·2	28·6	14·0
2	Visagapatam	1,446,480	3,965	478	15,821	535	18	30	404	68	520	3,295	24,614	2·7	0·3	10·9	0·4	0·4	2·3	17·0	14·5
3	Godavari	1,529,539	9,109	17,504	16,174	780	62	82	398	98	640	12,246	56,453	5·9	11·5	10·6	0·5	0·4	8·0	36·9	17·4
4	Kistna	1,387,377	5,974	4,682	16,377	544	133	127	659	71	990	11,723	40,290	4·3	3·4	11·8	0·4	0·7	8·4	29·0	16·5
5	Nellore	1,339,397	313	623	29,016	361	61	63	272	56	452	6,318	37,083	0·2	0·5	21·6	0·2	0·3	4·7	27·6	13·5
6	Madras	381,926	64	441	4,851	4,443	31	36	268	2	337	7,838	17,974	0·2	1·2	12·7	11·6	0·8	20·5	47·1	34·3
7	Chingleput	897,206	84	789	5,977	1,071	32	26	470	89	617	7,384	15,922	0·1	0·8	6·6	1·2	0·7	8·2	17·7	19·2
8	South Arcot	1,699,866	2,016	4,282	15,275	1,008	58	43	542	248	891	15,857	39,329	1·2	2·5	8·9	0·6	0·5	9·3	23·1	16·4
9	Trichinopoly	1,112,578	326	1,601	10,028	774	12	28	295	166	501	13,583	26,813	0·3	1·4	9·0	0·7	0·4	12·2	24·1	19·2
10	Tanjore	1,789,494	2,324	8,817	4,850	788	30	21	422	242	715	33,275	50,769	1·3	4·9	2·7	0·4	0·4	18·6	28·4	23·1
11	Madura	1,223,551	211	506	19,230	1,222	47	40	178	42	307	6,810	28,286	0·2	0·4	15·7	0·9	0·3	5·6	23·1	10·4
12	Tinnevelly	1,538,983	270	472	10,649	4,296	68	120	600	84	872	17,295	33,854	0·2	0·3	6·9	2·8	0·5	11·3	22·1	17·4
13	Kurnool	888,771	1,545	82	31,725	3,400	35	93	373	40	541	4,385	41,628	1·7	0·1	35·7	3·8	0·6	4·9	46·8	18·1
14	Cuddapah	1,384,783	3,160	181	43,868	1,504	93	129	831	73	1,126	3,628	53,467	2·3	0·1	32·8	1·1	0·8	2·7	40·0	17·6
15	Bellary	1,571,460	3,971	113	24,093	3,503	69	121	904	71	1,165	38,038	70,883	2·5	0·1	15·3	2·2	0·7	24·2	45·1	18·6
16	North Arcot	1,932,371	71	2,056	26,178	2,383	60	73	905	108	1,146	17,109	48,943	0·04	1·1	13·5	1·2	0·6	8·8	25·3	21·1
17	Salem	1,891,890	585	3,351	23,834	1,768	67	89	639	117	912	17,159	47,609	0·3	1·7	12·6	0·9	0·5	9·1	25·2	21·6
18	Coimbatore	1,697,382	341	1,634	13,506	2,420	49	38	721	60	868	9,542	28,311	0·2	0·9	7·9	1·4	0·5	5·6	16·7	15·2
19	Nilgiris	60,275	2	109	827	187	...	...	14	1	15	161	1,301	0·03	1·8	13·7	3·1	0·2	2·6	21·6	15·9
20	South Canara	888,619	349	739	17,208	4,620	50	40	369	50	509	9,363	32,783	0·4	0·8	19·4	5·2	0·6	10·5	36·9	17·5
21	Malabar	2,078,348	549	4,601	18,137	3,107	83	45	481	176	785	11,202	38,381	0·2	2·2	8·7	1·5	0·4	5·4	18·4	17·1
	Total of Districts ...	27,622,201	42,791	53,786	362,438	39,105	1,077	1,260	9,942	1,928	14,207	249,182	761,509	1·5	1·9	13·1	1·4	0·5	9·02	27·5	17·3

* Exclusive of B—*Towns.*

Digitized by Google

VI—(*Continued*).

Deaths registered from different Causes in the Districts and Towns of the Madras Presidency during the Year 1878—(Continued).

1	2		3	4	5	6	7	8					9	10	11							
								Injuries.							Ratio of Deaths per 1,000 of Population.							
								Suicides.													Deaths.	
No.	Districts and Towns.		Population for which Returns were received.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Males.	Females.	Wounding and Accidents.	Snake-bite and killed by Wild Beasts.	Total.	All other Causes.	Total Deaths from all Causes.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injuries.	All other Causes.	For the Year.	Mean of previous 5 years ending 1876.
	B.—*Towns.*																					
1	Ganjam.	M. T. Berhampore	21,524	412	28	121	19	1	...	11	1	13	390	983	19·1	1·3	5·6	0·9	0·6	18·1	45·6	19·6
2		M. T. Chicacole	15,538	41	6	105	154	...	1	8	1	10	269	585	2·6	0·4	6·7	9·9	0·6	17·3	37·6	29·8
3		T. Ichapore	12,493	91	1	146	4	...	...	4	...	4	11	257	7·3	0·1	11·7	0·3	0·3	0·9	20·6	15·0
4		T. Parla Kimedi	15,954	278	9	364	1	...	...	7	...	7	34	693	17·4	0·6	22·8	0·1	0·4	2·1	43·4	19·4
5	Vizagapatam.	M. T. Vizagapatam ...	31,462	107	40	175	269	2	6	2	1	11	801	1,403	3·4	1·2	5·5	8·5	0·3	25·4	44·5	33·6
6		M. T. Vizianagram ...	20,164	108	10	407	200	5	3	17	...	25	137	887	5·3	0·4	20·1	9·9	1·2	6·8	43·9	29·4
7		M. T. Bimlipatam	8,601	40	1	38	53	...	...	2	1	3	132	267	4·6	0·1	4·4	6·1	0·3	15·3	31·0	27·0
8		M. T. Anakapalle	13,038	90	18	202	11	1	3	15	...	19	52	392	6·9	1·3	15·4	0·8	1·4	3·9	30·0	11·8
9		T. Bobbili	14,151	44	1	230	1	2	...	4	...	6	15	297	3·1	0·1	16·2	0·1	0·4	1·06	20·9	11·1
10		T. Salur	10,633	102	...	80	...	1	...	1	...	2	11	195	9·6	...	7·5	...	0·2	1·03	18·3	12·5
11	Godavari.	M. T. Ellore	25,433	171	130	70	113	1	3	5	2	11	555	1,050	6·7	5·1	2·7	4·4	0·4	21·8	41·3	29·1
12		M. T. Rajahmundry ...	19,622	88	188	90	86	3	3	5	4	15	571	1,038	4·5	9·6	4·6	4·4	0·8	29·1	52·9	21·5
13		M. T. Cocanada	17,509	180	253	69	75	1	2	5	...	8	391	976	10·2	14·4	3·9	4·2	0·5	22·3	55·7	26·8
14	Kistna.	M. T. Masulipatam ...	36,015	252	86	127	49	1	1	11	4	17	422	953	6·9	2·4	3·5	1·3	0·5	11·7	26·4	15·0
15		M. T. Guntoor	17,984	...	39	65	91	2	1	17	...	20	294	509	...	2·1	3·6	5·06	1·1	16·4	28·3	18·8
16		T. Bapatla	10,690	5	10	132	4	...	1	1	1	3	22	176	0·5	0·9	12·3	0·4	0·3	2·0	16·4	5·4
17	Nellore.	M. T. Nellore	29,698	1	4	391	354	2	1	10	3	16	505	1,271	0·03	0·1	13·1	11·9	0·5	17·0	42·8	21·9
18		M. T. Ongole	7,388	...	4	197	1	...	1	4	...	5	211	418	...	0·5	26·6	0·1	0·7	28·5	56·5	...
19	Chingleput.	M. T. Conjeveram ...	37,317	1	58	226	531	...	1	14	...	15	208	1,039	0·03	1·5	6·1	14·2	0·4	5·6	27·8	25·1
20	South Arcot.	M. T. Cuddalore	39,940	48	144	256	164	...	...	5	4	9	338	959	1·2	3·6	6·4	4·1	0·2	8·4	24·0	18·9
21		M. T. Chilambaram ...	15,518	32	65	141	27	...	...	8	...	8	57	330	2·0	4·2	9·1	1·7	0·5	3·7	21·3	18·9
22	Trichinopoly.	M. T. Trichinopoly ...	75,306	131	54	268	600	2	1	18	1	22	615	1,690	1·7	0·7	3·5	7·9	0·3	8·2	22·4	23·0
23		M. T. Srirangam ...	11,271	27	7	60		...	...	1	...	1	279	529	2·4	0·6	5·3	13·8	0·1	24·7	46·9	39·1

Digitized by Google

24	Tanjore.	M. T. Tanjore	52,014	11	54	220	389	2	1	10	4	17	543	1,284	0·2	1·04	4·2	7·4	0·3	10·4	23·7	29·6
25		M. T. Combaconum ...	44,895	141	76	322	388	...	...	20	2	22	782	1,731	3·2	1·7	7·2	8·7	0·5	17·6	38·9	27·7
26		M. T. Negapatam	48,075	174	66	318	272	1	...	12	2	15	588	1,433	3·6	1·3	6·6	5·7	0·3	12·2	29·8	29·4
27		M. T. Mayavaram	21,160	58	24	36	57	...	...	...	...	...	244	414	2·5	1·1	1·7	2·7	...	11·5	19·5	28·4
28		M. T. Mannargudi	17,682	41	31	79	86	...	1	1	3	5	200	442	2·3	1·7	4·5	4·8	0·8	11·3	24·9	27·9
29	Madura.	M. T. Madura	51,806	63	38	282	788	4	4	32	1	41	1,345	2,507	1·2	0·7	5·4	14·2	0·8	25·9	48·4	36·4
30		M. T. Dindigul	12,811	1	9	77	32	...	...	9	...	9	107	235	0·1	0·7	6·0	2·5	0·7	8·3	18·3	15·8
31		T. Periyakulam	13,468	...	...	158	76	...	...	3	2	5	23	262	...	...	11·7	5·6	0·4	1·7	19·4	18·5
32		T. Cumbum	14,770	...	11	232	40	...	...	2	2	4	123	410	...	0·8	15·7	2·7	0·3	8·3	27·7	21·1
33		T. Pulney	12,801	...	6	71	18	...	1	6	...	7	175	277	...	0·5	5·5	1·4	0·6	13·7	21·6	28·4
34	Tinnevelly.	M. T. Tinnevelly	21,044	14	22	95	180	2	2	8	...	12	575	898	0·7	1·0	4·5	8·5	0·5	27·3	42·7	37·7
35		M. T. Palamcottah	17,785	20	24	85	149	...	1	5	...	6	335	578	1·1	1·4	1·9	8·4	0·3	19·1	32·2	31·2
36		M. T. Tuticorin	10,475	1	14	83	201	1	...	2	1	4	110	412	0·1	1·3	7·8	19·1	0·4	10·5	39·3	49·4
37		T. Kayalpatnam	11,197	...	...	26	2	...	...	5	1	6	77	111	...	...	2·3	0·2	0·5	6·9	9·9	23·1
38		T. Watrap	14,892	...	...	34	1	1	...	6	...	7	255	297	...	...	2·3	0·1	0·5	17·1	19·9	16·7
39		T. Nachiarkoil	14,136	...	...	37	1	1	1	11	...	13	242	293	...	...	2·6	0·1	0·9	17·1	20·7	17·6
40		T. Sankaranainarkoil ...	11,632	2	...	11	3	2	...	7	...	9	174	199	0·2	...	0·9	0·3	0·8	14·9	17·1	14·4
41		T. Sivagiri	14,025	3	4	56	70	...	...	14	1	15	179	327	0·2	0·3	3·9	4·9	1·1	12·7	23·3	20·5
42		T. Viravanallur	12,172	3	2	9	...	...	...	1	...	1	164	179	0·3	0·2	0·8	...	0·1	13·5	14·7	16·7
43		T. Kulladakurchi	11,580	...	...	22	19	...	1	5	...	6	251	298	...	...	1·9	1·6	0·5	21·7	25·7	23·6
44		T. Sivakasi	10,153	1	...	27	...	...	4	9	...	13	125	166	0·1	...	2·6	...	1·2	12·3	16·3	15·6
45		T. Tenkasi	10,605	4	17	132	18	1	...	1	...	2	194	362	0·4	1·6	12·4	1·2	0·2	18·3	34·1	19·7
46	Kurnool.	M. T. Kurnool	25,462	351	3	985	655	2	1	11	...	14	346	2,304	13·8	0·1	36·7	25·7	0·5	13·5	90·5	37·0
47	Cuddapah.	M. T. Cuddapah	16,184	101	1	691	164	2	1	12	...	15	597	1,569	6·2	0·1	42·7	10·1	0·9	36·8	96·9	42·0
48	Bellary.	M. T. Bellary	49,959	285	25	512	591	5	5	92	...	102	992	2,507	5·7	0·5	10·2	11·8	2·0	19·8	50·1	21·2
49		M. T. Adoni	22,722	110	14	550	438	1	...	8	...	9	178	1,299	4·9	0·6	24·2	19·3	0·4	7·8	57·1	43·3
50		M. T. Gooty	6,705	34	...	59	52	...	...	1	...	1	251	397	5·1	...	8·8	7·7	0·1	37·4	59·2	22·3
51		M. T. Anantapur	4,909	118	...	126	161	1	...	12	...	13	156	574	24·3	...	25·7	32·8	2·6	31·7	116·9	21·5
52		T. Hospet	10,060	108	11	140	6	3	3	5	...	11	201	477	10·7	1·1	13·9	0·6	1·1	19·9	47·4	31·4
53	North Arcot.	M. T. Vellore	37,569	...	20	252	187	1	2	2	...	5	465	929	...	0·6	6·7	4·9	0·1	12·4	24·7	27·9
54		M. T. Wallajapet	12,099	3	11	48	43	1	...	8	1	10	197	312	0·2	0·9	3·9	3·5	0·8	16·3	25·7	30·8
55		T. Arcot	10,988	...	23	29	19	...	...	2	2	4	192	267	...	2·1	2·6	1·7	0·4	17·5	24·3	32·1
56		T. Gudiathum	10,804	...	...	96	1	...	...	...	...	...	27	124	...	...	8·9	0·1	...	2·5	11·5	24·1
57		T. Tripatty	10,423	...	2	161	27	...	...	...	1	1	114	305	...	0·2	15·4	2·6	0·1	10·9	29·2	30·0
58	Salem.	M. T. Salem	49,873	95	62	327	290	1	1	18	3	23	510	1.307	1·9	1·2	6·5	5·8	0·5	10·2	26·2	25·4
59		T. Tirupatur	12,816	2	16	194	7	...	...	...	...	...	188	407	0·2	1·2	15·1	0·6	...	14·6	31·7	25·8
60		T. Sundamungalum ...	11,783	15	2	85	...	...	...	10	2	12	18	132	1·3	0·2	7·2	...	1·0	1·6	11·2	11·9
61	Coimbatore.	M. T. Coimbatore	34,968	4	27	171	103	2	2	8	1	13	217	535	0·1	0·8	4·9	2·9	0·4	6·2	15·3	12·4
62		M. T. Erode	10,188	7	4	47	43	...	...	2	...	2	60	163	0·7	0·4	4·6	4·2	0·?	5·9	15·9	20·4
63		M. T. Karur	9,378	6	5	137	7	1	...	1	...	2	54	211	0·6	0·5	14·6	0·7	0·2	5·7	22·5	22·1
64		T. Aravacoorchy	10,763	7	...	61	1	2	...	3	2	7	203	279	0·7	...	5·7	0·1	0·7	18·8	25·9	23·9

VI—(*Continued*).

Deaths registered from different Causes in the Districts and Towns of the Madras Presidency during the Year 1878—(Continued).

1	2		3	4	5	6	7	8					9	10	11							
								Injuries.							Ratio of Deaths per 1,000 of Population.							
								Suicides.													Deaths.	
No.	Districts and Towns.		Population for which Returns were received.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Males.	Females.	Wounding and Accidents.	Snake-bite and killed by Wild Beasts.	Total.	All other Causes.	Total Deaths from all Causes.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injuries.	All other Causes.	For the Year.	Mean of previous 5 years ending 1876.
	B.—*Towns*—(Continued).																					
65	Nilgiri.	M. T. Ootacamund ...	9,213	7	12	122	59	1	...	3	...	4	222	426	0·8	1·3	13·2	6·4	0·5	24·1	46·3	29·9
66	Nilgiri.	M. T. Coonoor	2,906	8	1	46	98	...	...	3	...	3	46	202	2·7	0·4	15·8	33·7	1·0	15·8	69·5	37·4
67	South Canara.	M. T. Mangalore	29,423	...	...	210	85	...	...	21	...	21	313	629	...	...	7·1	2·9	0·7	10·6	21·4	24·9
68	Malabar.	M. T. Tellicherry	19,434	124	1	97	6	...	...	7	...	7	272	507	6·4	0·05	4·9	0·3	0·4	13·9	26·1	25·9
69	Malabar.	M. T. Calicut	47,149	54	320	94	30	2	...	6	2	10	725	1,233	1·2	6·8	1·9	0·6	0·2	15·4	26·1	29·3
70	Malabar.	M. T. Palghat	30,689	14	294	341	113	1	3	26	3	33	506	1,301	0·5	9·6	11·1	3·6	1·1	16·5	42·4	29·1
71	Malabar.	M. T. Cochin	12,315	125	165	40	53	...	...	6	...	6	231	620	10·1	13·4	3·2	4·3	0·5	18·8	50·3	31·2
72	Malabar.	M. T. Cannanore	28,840	11	1	77	22	...	...	1	2	3	262	376	0·4	0·04	2·7	0·8	0·1	9·1	13·1	29·4
73	Malabar.	T. Ponani	11,453	6	...	36	20	...	...	...	...	...	1	63	0·5	...	3·1	1·8	...	0·1	5·5	12·4
		Total Towns ...	1,505,004	4,376	2,574	12,005	8,978	65	62	612	61	800	20,679	49,412	2·9	1·7	7·9	5·9	0·5	13·7	32·8	27·5
		Total, Madras Presidency ...	29,127,205	47,167	56,360	374,443	48,083	1,142	1,322	10,554	1,989	15,007	269,861	810,921	1·6	1·9	12·8	1·6	0·5	9·2	27·8	18·1

Digitized by Google

VII.

Deaths registered from Cholera in the Districts of the Madras Presidency during each Month of the Year 1878.

1	2	3		4		5												6			7			8
		Circles of Registration.		Villages.														Total.			Ratio of Deaths per 1,000 of Population.			
Number.	Districts.	No. in each District.	No. from which Deaths from Cholera were reported.	No. in each District.	No. from which Deaths from Cholera were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.	Mean Ratio per 1,000 for previous 5 Years ending 1876.
1	Ganjam	6	6	5,174	748	500	641	1,756	1,573	1,430	1,021	1,061	295	48	18	8	33	4,603	3,781	8,384	9·2	7·5	8·3	0·8
2	Vizagapatam	18	17	2,915	636	340	138	714	583	455	688	804	490	159	21	7	107	2,469	1,987	4,456	3·1	2·6	2·9	0·7
3	Godavari	14	14	2,128	873	230	61	20	98	229	724	2,616	2,348	1,629	681	406	506	5,061	4,487	9,548	6·3	5·7	5·9	0·2
4	Kistna	14	13	2,141	634	522	80	52	...	2	270	460	1,389	1,874	505	346	731	3,289	2,942	6,231	4·3	4·1	4·3	0·2
5	Nellore	12	11	2,184	57	74	37	5	...	...	...	2	54	116	26	...	...	189	125	314	0·2	0·2	0·2	0·7
6	Madras	1	1	37	18	11	8	5	2	1	4	...	3	...	6	19	5	32	32	64	0·2	0·2	0·2	0·7
7	Chingleput	7	5	2,394	16	17	6	...	...	1	...	...	...	...	...	51	10	47	38	85	0·1	0·1	0·1	0·5
8	South Arcot	10	10	3,118	365	514	182	59	89	44	60	471	465	137	23	21	31	1,149	947	2,096	1·3	1·1	1·2	1·1
9	Trichinopoly	8	8	1,674	123	348	65	12	7	4	2	3	10	26	3	2	2	271	213	484	0·5	0·3	0·4	1·5
10	Tanjore	14	14	3,967	515	671	257	71	56	13	9	218	805	402	134	34	74	1,369	1,375	2,744	1·4	1·3	1·4	1·9
11	Madura	9	7	1,224	49	80	46	10	8	3	...	...	...	85	13	30	...	161	114	275	0·2	0·2	0·2	1·1
12	Tinnevelly	12	12	1,849	123	271	32	5	3	4	...	...	2	...	1	...	...	191	127	318	0·2	0·1	0·2	1·1
13	Kurnool	9	9	787	94	...	...	...	...	193	571	399	417	297	18	1	...	1,036	860	1,896	2·2	1·9	2·1	0·2
14	Cuddapah	12	12	1,811	269	93	60	10	...	70	341	1,579	754	323	21	10	...	1,721	1,540	3,261	2·5	2·3	2·4	0·8
15	Bellary	20	20	2,543	289	...	...	...	286	1,648	1,647	664	295	33	49	9	...	2,629	1,997	4,626	3·1	2·5	2·7	0·3
16	North Arcot	12	7	5,241	15	67	7	...	...	...	...	...	...	...	...	...	...	38	36	74	0·03	0·04	0·03	0·9
17	Salem	10	10	5,312	165	273	209	111	10	10	5	47	20	9	...	...	3	379	318	697	0·4	0·3	0·3	0·9
18	Coimbatore	13	12	1,579	63	97	7	28	...	...	...	...	80	107	44	2	...	190	175	365	0·2	0·2	0·2	1·6
19	Nilgiris	3	3	20	2	...	...	...	...	...	...	2	10	5	...	...	...	11	6	17	0·3	0·2	0·2	0·1
20	South Canara	6	5	1,291	84	293	45	...	6	2	...	...	...	...	1	...	2	191	158	349	0·4	0·3	0·4	0·1
21	Malabar	17	15	436	80	88	104	123	55	56	26	17	88	182	95	37	62	437	446	883	0·4	0·4	0·4	0·3
	Total, Madras Presidency.	227	211	47,325	5,218	4,439	1,985	2,981	2,726	4,160	5,368	8,343	7,525	5,432	1,659	963	1,566	25,463	21,704	47,167	1·7	1·5	1·6	0·8

Digitized by Google

VIII.

Deaths registered from Small-pox in the Districts of the Madras Presidency during each Month of the Year 1878.

1	2	3		4		5												6			7		8			9
		Circles of Registration.		Villages.														Total.			No. of these Deaths among Children.		Total Ratio of Deaths per 1,000 of Population.			
Number.	Districts.	No. in each District.	No. from which Deaths from Small-pox were reported.	No. in each District.	No. from which Deaths from Small-pox were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Under 1 Year.	Under 12 Years.	Males.	Females.	Total.	Mean Ratio per 1,000 for previous 5 Years ending 1876.
1	Ganjam	6	6	5,174	Information not available.	64	76	93	130	89	69	40	33	27	32	36	80	438	331	769	Information not available.	Do.	0·8	0·6	0·7	0·7
2	Vizagapatam ...	18	18	2,915		...	46	35	106	32	49	71	48	41	66	28	26	281	267	548			0·4	0·3	0·3	0·5
3	Godavari	14	14	2,128		747	1,562	2,324	2,684	2,881	2,340	1,865	1,259	995	531	350	537	9,410	8,665	18,075			11·7	10·9	11·4	1·3
4	Kistna	14	14	2,141		526	680	794	622	586	451	251	254	252	146	110	145	2,519	2,298	4,817			3·3	3·2	3·3	1·1
5	Nellore	12	12	2,184		131	125	112	58	46	23	30	16	23	33	16	18	315	316	631			0·4	0·5	0·5	0·5
6	Madras	1	1	37		102	89	58	35	26	28	20	12	10	17	20	24	214	227	441			1·1	1·2	1·2	1·5
7	Chingleput ...	7	7	2,394		184	160	127	113	50	35	36	41	31	19	28	23	427	420	847			0·9	0·9	0·9	1·5
8	South Arcot ...	10	10	3,118		723	551	708	497	378	241	265	278	258	270	170	152	2,251	2,240	4,491			2·5	2·9	2·5	1·7
9	Trichinopoly ...	8	8	1,674		427	291	328	183	98	54	62	44	35	28	32	80	875	787	1,662			1·5	1·3	1·4	0·7
10	Tanjore	14	14	3,967		1,370	1,217	1,315	1,242	898	682	639	541	420	329	237	178	4,511	4,557	9,068			4·7	4·5	4·6	1·2
11	Madura	9	9	1,224		83	90	71	38	39	19	27	25	50	93	27	8	294	276	570			0·4	0·4	0·4	2·2
12	Tinnevelly ...	12	12	1,849		120	75	43	46	42	45	33	30	28	42	30	22	286	269	555			0·3	0·3	0·3	1·7
13	Kurnool	9	8	787		11	6	7	15	3	7	4	3	10	14	5	...	47	38	85			0·1	0·1	0·1	1·0
14	Cuddapah ...	12	12	1,311		50	17	18	11	12	9	11	6	18	2	18	10	92	90	182			0·1	0·1	0·1	0·7
15	Bellary	20	17	2,543		30	14	13	14	5	19	17	9	13	11	13	5	76	87	163			0·1	0·1	0·1	0·9
16	North Arcot ...	12	12	5,241		496	414	342	227	167	115	97	71	51	68	34	30	1,116	996	2,112			1·1	1·0	1·0	1·5
17	Salem	10	10	5,312		1,119	840	605	307	184	90	78	62	45	51	37	13	1,846	1,585	3,431			1·9	1·6	1·7	1·5
18	Coimbatore ...	13	13	1,579		340	298	363	195	138	94	49	37	31	25	39	61	836	834	1,670			0·9	0·9	0·9	0·7
19	Nilgiris	3	3	20		35	13	16	21	15	10	...	1	3	...	7	1	65	57	122			1·7	1·7	1·7	0·2
20	South Canara ...	6	5	1,291		98	141	151	104	85	52	48	30	11	8	7	4	409	330	739			0·9	0·7	0·8	0·9
21	Malabar	17	15	436		544	841	1,171	876	449	249	230	251	206	239	132	196	3,076	2,306	5,382			2·8	2·1	2·4	1·1
	Total, Madras Presidency.	227	220	47,825	...	7,200	7,546	8,698	7,524	6,221	4,681	3,878	3,051	2,558	2,024	1,376	1,613	29,384	26,976	56,360	...	...	2·0	1·8	1·9	1·2

Digitized by Google

IX.

Deaths registered from Fevers in the Districts of the Madras Presidency during each Month of the Year 1878.

1	2	3		4		5												6			7			8
		Circles of Registration.		Villages.														Total.			Ratio of Deaths per 1,000 of Population.			
No.	Districts.	No. in each District.	No. from which Deaths from Fevers were reported.	No. in each District.	No. from which Deaths from Fevers were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.	Mean Ratio per 1,000 for previous 5 years ending 1876.
1	Ganjam	6	6	5,174	Information not available.	924	788	1,078	1,074	1,224	1,802	1,451	1,868	1,800	1,406	1,020	1,118	8,569	6,986	15,555	17·1	13·9	15·5	9·6
2	Vizagapatam ...	18	18	2,915		1,204	989	1,018	990	665	832	1,302	1,242	1,114	3,387	2,133	2,077	8,937	8,016	16,953	11·4	10·6	10·9	10·4
3	Godavari	14	14	2,128		929	673	707	716	820	1,070	1,229	1,781	2,209	1,964	1,913	2,392	8,711	7,692	16,403	10·8	9·7	10·3	9·3
4	Kistna	14	14	2,141		1,048	694	779	595	682	783	754	1,367	2,280	2,514	2,542	2,713	8,803	7,898	16,701	11·9	11·1	11·5	7·7
5	Nellore	12	12	2,184		5,876	2,688	2,271	1,659	1,441	1,507	1,197	1,076	1,795	2,813	2,311	5,970	16,582	13,022	29,604	23·4	19·4	21·5	6·6
6	Madras	1	1	87		725	427	408	344	346	342	248	324	449	463	407	368	2,385	2,466	4,851	12·8	12·7	12·7	6·4
7	Chingleput	7	7	2,394		983	571	478	372	284	369	264	356	496	595	784	701	3,257	2,946	6,203	6·9	6·4	6·6	5·8
8	South Arcot	10	10	3,118		2,432	1,588	1,248	937	878	784	895	1,023	1,233	1,335	1,581	1,743	8,372	7,300	15,672	9·5	8·4	8·9	6·9
9	Trichinopoly ...	8	8	1,674		1,524	1,125	997	752	723	593	650	658	697	754	890	993	5,140	5,216	10,356	8·8	8·5	8·6	7·7
10	Tanjore	14	14	3,967		567	385	345	372	414	399	417	513	636	616	630	531	2,999	2,826	5,825	3·1	2·7	2·9	3·1
11	Madura	9	9	1,224		3,040	1,799	1,241	958	960	1,041	1,096	1,289	1,424	1,723	2,408	3,071	10,727	9,323	20,050	16·3	13·9	15·1	4·6
12	Tinnevelly	12	12	1,859		1,887	1,433	1,252	913	727	835	704	705	698	678	643	740	5,827	5,388	11,215	6·9	6·3	6·6	4·3
13	Kurnool	9	9	787		5,655	3,251	2,816	1,949	1,747	1,448	2,136	2,450	2,890	2,843	2,782	2,693	16,635	16,025	32,660	35·6	35·8	35·7	13·7
14	Cuddapah	12	12	1,311		9,542	5,818	4,967	3,573	2,673	2,149	2,360	2,285	2,677	2,915	3,091	3,009	23,801	20,758	44,559	34·3	31·5	32·9	12·6
15	Bellary	20	20	2,543		5,547	2,925	2,898	2,254	1,909	1,332	1,313	1,332	1,360	1,372	1,599	1,639	13,540	11,940	25,480	15·8	14·8	15·3	6·1
16	North Arcot	12	12	5,241		5,485	3,117	2,365	1,771	1,430	1,384	1,301	1,575	1,712	1,847	2,287	2,490	14,216	12,548	26,764	13·9	12·6	13·3	10·2
17	Salem	10	10	5,312		2,855	2,544	1,997	1,480	1,379	1,418	1,997	2,084	1,662	1,659	2,089	3,276	12,031	12,409	24,440	12·3	12·5	12·4	11·5
18	Coimbatore	13	13	1,579		1,331	1,379	1,287	770	944	997	951	934	1,015	1,008	1,110	1,696	7,729	6,193	13,922	8·8	6·9	7·9	6·7
19	Nilgiris	3	3	20		65	56	82	93	141	111	105	94	99	49	46	54	548	447	995	14·3	13·1	13·7	11·2
20	South Canara ...	6	6	1,291		886	862	889	964	876	1,318	3,987	3,385	1,650	921	765	910	8,921	8,492	17,413	19·4	18·1	18·9	5·3
21	Malabar	17	17	436		1,858	1,761	1,646	1,378	1,437	1,683	2,072	1,868	1,587	1,241	1,161	1,180	10,843	7,979	18,822	9·7	7·2	8·4	5·9
	Total, Madras Presidency.	227	227	47,825	...	54,363	34,373	30,769	23,914	21,695	22,147	26,429	28,209	29,433	31,605	32,142	39,364	198,573	175,870	374,443	13·6	12·1	12·8	7·6

Digitized by Google

X.

Deaths registered from Bowel-complaints in the Districts of the Madras Presidency during each Month of the Year 1878.

1	2	3		4		5												6			7			8
No.	Districts.	Circles of Registration.		Villages.														Total.			Ratio of Deaths per 1,000 of Population.			Mean Ratio per 1,000 for previous 5 years ending 1876.
		No. in each District.	No. from which Deaths from Bowel-complaints were reported.	No. in each District.	No. from which Deaths from Bowel-complaints were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.	
1	Ganjam	6	6	5,174	Information not available.	34	35	45	41	56	78	51	78	55	38	33	35	343	226	569	0·6	0·4	0·5	0·5
2	Vizagapatam	18	18	2,915		61	97	47	76	54	85	109	177	162	110	47	44	572	497	1,069	0·7	0·6	0·7	0·3
3	Godavari	14	14	2,128		49	39	47	50	61	63	89	188	188	122	84	124	575	479	1,054	0·7	0·6	0·6	0·5
4	Kistna	14	14	2,141		57	32	37	35	38	49	67	101	92	66	62	52	374	314	688	0·5	0·4	0·4	0·4
5	Nellore	12	12	2,184		126	106	60	43	42	27	41	37	60	57	71	44	432	284	716	0·6	0·4	0·5	0·5
6	Madras	1	1	37		1,020	586	396	259	225	170	175	373	513	330	207	189	2,222	2,221	4,443	11·8	11·3	11·6	5·04
7	Chingleput	7	7	2,394		279	172	109	114	88	108	101	123	120	151	129	118	847	755	1,602	1·8	1·6	1·7	2·2
8	South Arcot	10	10	3,118		231	161	146	83	64	52	73	92	103	84	69	41	722	474	1,199	0·8	0·5	0·7	0·9
9	Trichinopoly	8	8	1,674		293	153	151	108	86	94	106	109	117	116	106	95	836	693	1,529	1·4	1·1	1·3	1·2
10	Tanjore	14	14	3,967		195	178	216	149	134	136	141	195	208	150	184	144	1,034	946	1,980	1·1	0·9	1·0	1·0
11	Madura	9	9	1,224		632	327	201	171	127	133	112	81	120	98	66	73	1,242	884	2,126	1·9	1·3	1·6	1·1
12	Tinnevelly	12	12	1,849		1,427	695	404	275	237	278	232	258	251	277	281	320	2,541	2,394	4,935	3·0	2·8	2·9	3·8
13	Kurnool	9	9	787		159	107	128	116	308	308	518	605	727	391	510	188	2,034	2,021	4,055	4·3	4·5	4·4	0·5
14	Cuddapah	12	12	1,311		338	266	276	95	134	129	78	103	90	61	68	35	890	778	1,668	1·3	1·1	1·2	0·6
15	Bellary	20	20	2,543		508	400	362	368	281	369	494	567	490	384	241	292	2,620	2,131	4,751	3·0	2·6	2·8	1·1
16	North Arcot	12	12	5,241		938	377	254	173	105	118	119	154	171	141	50	60	1,431	1,229	2,660	1·3	1·3	1·3	1·1
17	Salem	10	10	5,312		342	185	225	130	117	118	188	248	172	137	120	83	1,027	1,038	2,065	1·1	1·0	1·1	0·9
18	Coimbatore	13	13	1,579		480	281	218	158	156	198	242	220	209	182	119	116	1,475	1,099	2,574	1·7	1·3	1·5	1·6
19	Nilgiris	3	3	20		26	19	32	35	26	49	42	33	44	16	11	11	180	164	344	4·6	4·8	4·7	2·4
20	South Canara	6	6	1,291		555	450	349	349	300	299	456	508	390	344	293	412	2,715	1,990	4,705	5·8	4·3	5·1	3·5
21	Malabar	17	17	436		249	187	226	237	233	339	354	423	361	288	249	205	1,840	1,511	3,351	1·6	1·3	1·5	2·7
	Total, Madras Presidency.	227	227	47,325	...	7,969	4,855	3,929	3,055	2,867	3,185	3,788	4,623	4,643	3,538	2,945	2,666	25,955	22,121	48,083	1·7	1·5	1·6	1·3

XI.

***Births and Deaths registered among Europeans and Eurasians from different Causes in each District of the Madras Presidency, and the Number Born Dead among all Classes during the Year* 1878.**

1	2		3			4			5			6			7			8														
No.	Districts.		Population for which Returns were received.			Cholera.			Small-pox.			Fevers.			Bowel-complaints.			Injuries.														
																		Suicides.			Wounds.			Accidents.			Snake-bite.			Kild by Wild Beasts.		
			M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1	Ganjam ...	Europeans ...	103	49	152	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	102	103	205	...	...	...	1	...	1	1	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Vizagapatam.	Europeans ...	245	152	397	...	...	...	...	...	...	1	1	2	3	1	4	2	...	2	...	...	...	3	...	3	...	...	...	...	...	...
		Eurasians ...	365	446	811	1	...	1	...	1	1	2	7	9	1	3	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	Godavari ...	Europeans ...	252	199	451	2	...	2	...	...	...	2	...	2	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	202	183	385	2	...	2	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	Kistna ...	Europeans ...	53	37	90	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	123	95	218	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	Nellore ...	Europeans ...	59	42	101	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	121	116	237	...	...	...	...	...	...	1	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	Madras ...	Europeans ...	2,270	1,343	3,613	3	1	4	...	...	...	14	12	26	16	5	21	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...
		Eurasians ...	5,810	6,203	12,013	8	9	17	5	1	6	50	55	105	35	43	78	...	...	...	...	1	1	6	1	7	...	...	...	...	...	...
7	Chingleput...	Europeans ...	1,516	574	2,090	...	...	...	...	...	...	3	3	6	2	...	2	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
		Eurasians ...	624	947	1,571	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	South Arcot.	Europeans ...	67	56	123	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	190	180	370	1	...	1	...	1	1	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
9	Trichinopoly.	Europeans ...	457	166	623	2	...	2	...	...	...	2	1	3	2	...	2	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
		Eurasians ...	287	343	630	1	...	1	...	1	1	1	1	2	1	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	Tanjore ...	Europeans ...	219	170	389	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	257	265	522	...	1	1	...	1	1	2	...	2	1	2	3	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...
11	Madura ...	Europeans ...	105	63	168	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	81	92	173	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	Tinnevelly ...	Europeans ...	121	76	197	...	...	...	...	...	...	1	...	1	1	1	2	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
		Eurasians ...	62	71	133	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	Kurnool ...	Europeans ...	32	8	40	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	92	68	160	...	1	1	...	...	...	1	...	1	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	Cuddapah ...	Europeans ...	53	44	97	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	67	63	130	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	Bellary ...	Europeans ...	1,003	214	1,217	2	...	2	...	...	...	4	3	7	5	2	7	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	521	453	974	1	2	3	...	...	...	2	2	4	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	North Arcot.	Europeans ...	198	150	348	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	361	315	676	...	...	...	...	...	...	1	3	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	Salem ...	Europeans ...	168	88	256	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	194	183	377	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	Coimbatore.	Europeans ...	109	44	153	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	224	218	442	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	Nilgiris ...	Europeans ...	818	521	1,339	...	...	...	1	...	1	2	1	3	2	2	4	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
		Eurasians ...	523	273	796	...	...	...	...	1	1	3	2	5	2	2	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	South Canara	Europeans ...	83	47	130	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Eurasians ...	96	94	190	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	Malabar ...	Europeans ...	2,021	558	2,579	3	...	3	...	...	...	1	...	1	4	1	5	...	...	...	1	...	1	3	...	3	...	...	...	...	...	...
		Eurasians ...	2,780	2,633	5,413	3	6	9	...	...	...	...	...	...	1	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total ...	Europeans ...	9,952	4,601	14,553	14	1	15	1	1	2	34	22	56	37	12	49	4	...	4	...	...	1	12	...	12	...	...	...	...	...	...
		Eurasians ...	13,082	13,344	26,426	17	19	36	6	6	12	69	76	145	46	59	105	...	...	...	1	1	1	7	1	8	1	...	1	...	...	...

XI.—(*Continued.*)

Births and Deaths registered among Europeans and Eurasians from different Causes in each District of the Madras Presidency, and the Number Born Dead among all Classes during the Year 1878—(Continued).

No.	Districts.		Population for which Returns were received.			9 All other Causes.			10 Total Deaths from all Causes.			11 Total Births.			12 Ratio per 1,000 of Population.											13 Born Dead among all Classes.		
																				Total Deaths.			Total Births.					
			M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	Cholera.	Small-pox.	Fevers.	Bowel-complaints	Injuries.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1	Ganjam ...	Europeans ...	103	49	152	...	...	...	...	1	1	2	1	3	...	6·5	...	...	...	...	20·4	6·5	19·4	20·4	19·7	83	79	162
		Eurasians ...	102	103	205	1	1	2	4	1	5	5	...	5	...	4·8	4·8	4·8	...	39·2	9·7	28·3	49·0	...	28·3			
2	Vizagapatam.	Europeans ...	245	152	397	8	...	8	17	2	19	4	2	6	...	...	5·0	10·1	12·6	69·4	13·1	47·8	16·3	13·1	15·1	255	248	503
		Eurasians ...	365	446	811	5	10	15	10	20	30	6	10	16	1·2	1·2	11·1	4·9	...	27·4	44·8	36·9	16·4	22·4	19·7			
3	Godavari ...	Europeans ...	252	199	451	3	...	3	8	...	8	4	2	6	4·4	...	4·4	..	2·2	31·7	...	17·7	15·8	10·0	13·3	177	184	361
		Eurasians ...	202	183	385	1	5	6	4	6	10	6	4	10	5·2	...	...	5·2	...	19·8	32·8	25·9	29·7	21·7	25·9			
4	Kistna ...	Europeans ...	53	37	90	2	3	5	4	3	7	2	3	5	...	...	22·2	...	...	75·4	81·1	77·7	37·7	81·1	55·5	122	108	230
		Eurasians ...	123	95	218	3	1	4	3	2	5	3	2	5	...	...	...	4·5	...	24·4	21·0	22·9	24·4	21·0	22·9			
5	Nellore ...	Europeans ...	59	42	101	1	...	1	1	...	1	3	2	5	...	...	...	...	...	16·9	...	9·9	50·8	47·6	49·5	110	69	179
		Eurasians ...	121	116	237	...	1	1	2	1	3	2	...	2	...	...	4·2	4·2	...	16·5	8·6	12·6	16·5	...	8·4			
6	Madras ...	Europeans ...	2,270	1,343	3,613	74	314	105	109	49	158	58	43	101	1·1	...	7·2	5·8	0·6	48·0	36·5	43·7	25·5	32·0	27·9	164	167	331
		Eurasians ...	5,810	6,203	12,013	121	117	235	225	224	449	173	151	324	1·4	0·5	8·7	6·4	6·6	38·7	35·9	37·4	29·8	24·3	26·9			
7	Chingleput ...	Europeans ...	1,516	574	2,090	38	1	45	44	10	54	18	15	33	...	...	2·9	0·9	0·4	29·0	17·4	25·8	11·8	26·1	15·8	216	171	387
		Eurasians ...	624	947	1,571	4	1	15	4	16	20	7	9	16	...	...	3·2	...	...	6·4	16·9	12·7	11·2	9·5	10·2			
8	South Arcot.	Europeans ...	67	56	123	3	...	3	4	...	4	...	...	...	...	...	...	8·1	...	59·7	...	32·5	...	...	...	188	154	342
		Eurasians ...	190	180	370	1	5	6	4	6	10	3	6	9	2·7	2·7	2·7	...	2·7	21·0	33·3	27·0	15·8	33·3	24·3			
9	Trichinopoly.	Europeans ...	457	166	623	7	...	7	14	1	15	3	5	8	3·2	...	4·8	3·2	1·6	30·6	6·0	24·1	6·5	30·1	12·8	238	204	442
		Eurasians ...	287	343	630	4	1	5	7	5	12	11	9	20	1·6	1·6	3·2	4·7	...	24·4	14·6	19·0	38·3	32·1	31·7			
10	Tanjore ...	Europeans ...	219	170	389	2	1	3	3	2	5	2	...	2	...	...	5·1	...	..	13·7	11·8	12·8	9·1	...	5·1	845	752	1,597
		Eurasians ...	257	265	522	7	1	8	11	5	16	5	4	9	1·9	1·9	3·8	5·7	1·9	42·8	18·8	30·6	19·4	15·1	17·2			
11	Madura ...	Europeans	105	63	168	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	63	60	123
		Eurasians ...	81	92	173	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
12	Tinnevelly ...	Europeans ...	121	76	197	1	...	1	4	1	5	4	2	6	...	...	5·1	10·2	5·1	33·0	13·1	25·4	33·0	26·3	30·5	303	257	560
		Eurasians ...	62	71	133	2	2	4	3	2	5	7	3	10	...	...	...	7·5	...	48·4	28·1	37·6	112·9	42·2	75·2			
13	Kurnool ...	Europeans ...	32	8	40	...	...	...	1	...	1	1	...	1	25·0	...	...	...	...	31·2	...	25·0	31·2	...	25·0	27	24	51
		Eurasians ...	92	68	160	1	...	1	3	2	5	2	...	2	6·2	...	6·2	12·4	...	32·6	29·4	31·2	21·7	...	12·4			
14	Cuddapah ...	Europeans ...	53	44	97	...	...	...	1	...	1	...	...	...	...	...	10·3	...	...	18·8	...	10·3	...	...	...	48	65	113
		Eurasians ...	67	63	130	...	...	...	1	...	1	...	...	...	...	...	7·7	...	...	14·9	...	7·7	...	...	...			
15	Bellary ...	Europeans ...	1,003	214	1,217	13	8	21	25	13	38	9	9	18	1·6	...	5·7	5·7	0·8	24·9	60·7	31·2	8·9	42·1	14·8	76	81	157
		Eurasians ...	521	453	974	3	2	5	6	8	14	2	7	9	3·1	...	4·1	2·0	...	11·5	17·6	14·4	3·8	15·4	9·2			
16	North Arcot.	Europeans ...	198	150	348	1	...	1	1	...	1	1	1	2	...	...	...	...	...	5·0	...	2·9	5·0	6·7	5·8	146	172	318
		Eurasians ...	361	315	676	2	2	4	3	5	8	1	1	2	...	...	5·9	...	...	8·3	15·9	11·8	2·8	3·1	2·9			
17	Salem ...	Europeans ...	168	88	256	3	4	7	4	4	8	1	...	1	3·9	...	...	...	...	23·8	45·5	31·2	5·9	...	3·9	142	107	249
		Eurasians ...	194	183	377	1	1	2	2	2	4	4	2	6	...	...	5·3	...	...	10·3	10·9	10·6	20·6	10·9	15·9			
18	Coimbatore.	Europeans ...	109	44	153	...	...	...	1	...	1	2	2	4	...	...	...	6·5	...	9·1	...	6·5	18·2	45·4	26·1	70	54	124
		Eurasians ...	224	218	442	1	...	1	2	...	2	10	5	15	...	...	2·2	...	...	8·9	...	4·5	44·6	22·9	33·9			
19	Nilgiris ...	Europeans ...	818	521	1,339	13	11	24	19	14	33	31	33	64	...	0·7	2·2	2·9	0·7	23·2	26.8	24·6	37·9	63·3	47·8	3	2	5
		Eurasians ...	523	273	796	2	3	5	7	8	15	10	7	17	...	1·2	6·3	5·0	...	13·4	29·3	18·8	19·1	25·6	21·3			
20	South Canara	Europeans ...	83	47	130	...	...	...	...	...	...	4	5	9	...	...	...	...	...	..	...	...	48·2	106·4	69·2	314	272	586
		Eurasians ...	96	94	190	2	...	2	3	...	3	1	1	2	...	...	5·3	...	...	31·2	...	15·8	10·4	10·6	10·5			
21	Malabar ...	Europeans ...	2,021	558	2,579	10	2	12	22	3	25	17	11	28	1·2	...	0·4	1·9	1·5	10·8	5·4	9·7	8·4	19·7	10·9	252	197	449
		Eurasians ...	2,780	2,633	5,413	19	13	32	23	21	44	30	23	53	1·7	...	...	0·5	...	8·3	7·9	8·1	10·8	8·7	9·8			
	Total ...	Europeans ...	9,952	4,601	14,553	179	67	246	282	103	385	166	136	302	1·0	0·1	3·8	3·4	1·2	28·3	22·4	26·4	16·6	29·5	20·7	3,842	3,427	7,269
		Eurasians ...	13,082	13,344	26,426	180	173	353	327	334	661	288	244	532	1·4	0·5	5·5	3·9	0·4	24·9	25·0	25·0	22·0	18·3	20·1			

Digitized by Google

Return showing the Births and Deaths registered in the Municipalities of the Madras Presidency during the Year 1878.

Districts.	Municipal Towns.	Population.	Births. Class. Christians.	Births. Class. Mahomedans.	Births. Class. Hindus.	Births. Class. Other Classes.	Births. Total Births. Males.	Births. Total Births. Females.	Births. Total Births. Total.	Deaths. Christians.	Deaths. Mahomedans.	Deaths. Hindus.	Deaths. Other Classes.	Deaths. Causes of Death. Total Deaths. M.	Total Deaths. F.	Total Deaths. Total.	Cholera. M.	Cholera. F.	Small-pox. M.	Small-pox. F.	Fevers. M.	Fevers. F.
Bellary ...	Bellary	51,766	23	198	313	...	266	268	534	101	487	1,976	...	1,643	921	2,564	179	106	11	14	248	264
	Adoni	22,723	...	117	242	...	184	175	359	1	228	1,070	...	649	650	1,299	55	55	5	9	291	259
	Gooty	6,730	...	22	32	...	34	20	54	...	44	353	...	208	189	397	20	14	...	...	28	31
	Anantapur	4,918	...	7	31	...	17	21	38	...	67	507	...	299	275	574	68	55	...	...	63	63
Chingleput ...	Conjeveram	37,327	...	23	703	...	368	358	726	...	15	1,048	...	516	547	1,063	1	...	29	29	95	131
Coimbatore ...	Coimbatore	35,310	41	37	655	...	369	364	733	17	33	490	...	291	249	540	8	1	16	11	95	76
	Erode	10,201	10	25	109	...	86	58	144	11	29	126	...	90	76	166	6	1	4	...	26	21
	Karur	9,378	2	14	134	...	73	77	150	8	12	198	...	114	99	213	4	2	8	2	72	65
Cuddapah ...	Cuddapah	16,275	3	159	224	...	203	183	386	7	410	1,169	...	912	674	1,586	56	45	1	...	428	263
Ganjam ...	Chicacole	15,587	7	14	250	...	145	126	271	...	26	560	...	296	290	586	22	19	4	2	56	49
	Berhampore	21,670	...	17	408	...	249	176	425	5	53	931	...	565	424	989	247	165	16	12	65	56
Godavari ...	Cocanada	17,839	24	9	458	...	228	263	491	25	27	946	...	507	491	998	102	78	114	139	31	38
	Rajahmundry	19,738	9	29	462	...	244	256	500	8	82	952	...	554	488	1,042	51	37	97	91	53	37
	Ellore	25,487	8	111	593	...	365	347	712	11	170	894	...	540	535	1,075	79	92	59	71	39	31
Kistna ...	Masulipatam	36,188	14	151	679	...	473	371	844	9	190	768	1	485	483	968	132	120	32	54	70	57
	Guntoor	18,033	7	106	297	...	232	178	410	12	109	402	...	276	247	523	...	...	18	21	32	33
Kurnool ...	Kurnool	25,579	8	88	104	...	107	93	200	16	711	1,583	...	1,283	1,027	2,310	198	153	1	2	485	450
Madras ...	Madras	397,552	944	1,370	12,764	...	7,860	7,218	15,078	1,229	1,829	15,854	...	9,525	9,387	18,912	43	42	219	228	2,449	2,533
Madura ...	Madura	51,987	49	202	1,391	...	873	769	1,642	40	165	2,387	...	1,390	1,152	2,542	46	17	17	21	160	122
	Dindigul	12,865	56	45	216	...	179	138	317	81	50	157	...	140	98	238	1	...	6	3	42	37
Malabar ...	Tellicherry	20,504	41	147	229	...	218	199	417	35	183	311	.	312	217	529	59	65	1	...	67	30
	Calicut	47,962	10	237	450	...	367	330	697	42	352	861	1	707	549	1,256	28	26	162	158	52	42
	Palghat	30,752	24	128	895	...	500	547	1,047	22	161	1,120	...	696	607	1,303	5	9	181	163	199	142
	Cochin	13,840	242	28	83	...	188	165	353	330	157	171	...	363	295	658	70	55	107	58	22	18
	Cannanore	31,358	88	167	198	9	239	223	462	63	151	184	...	211	187	398	3	8	...	1	39	38

Return showing the Births and Deaths registered in the Municipalities of the Madras Presidency during the Year 1878—(Continued).

Districts.	Municipal Towns.	Deaths—(*Continued*). Causes of Death—(*Continued*). Bowel-complaints. M.	Bowel-complaints. F.	Injuries. Suicides. M.	Suicides. F.	Wounds. M.	Wounds. F.	Accidents. M.	Accidents. F.	Snake-bite. M.	Snake-bite. F.	Killed by Wild Beasts. M.	Killed by Wild Beasts. F.	All other Causes. M.	All other Causes. F.	Ratio per 1,000 of Population. Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injuries.	Total Deaths.	Total Births.	Average Ratio for 3 years ending 1876 per 1,000 of Population. Deaths.	Births.
Bellary ...	Bellary	470	121	5	5	51	29	9	3	...	...	...	...	670	379	5·5	0·4	9·8	11·4	1·9	49·5	10·8	24·6	25.8
	Adoni	204	234	1	...	...	...	5	3	...	...	...	...	88	90	4·8	0·6	24·2	19·2	0·3	57·1	15·8	45·5	39·3
	Gooty	24	28	...	...	...	1	...	...	...	...	...	...	136	115	5·0	...	8·7	7·7	0·1	58·9	8·0	24·3	19·4
	Anantapur ...	76	85	1	...	1	...	4	7	...	...	...	...	91	65	23·9	...	25·6	32·7	2·6	116·7	7·7	23·5	32·2
Chingleput ...	Conjeveram ...	275	256	...	1	...	...	6	8	...	...	...	...	110	122	0·02	1·5	6·0	14·2	0·4	28·4	19·4	27·4	25·0
Coimbatore ...	Coimbatore ...	70	33	2	2	...	...	4	4	...	1	...	...	101	121	0·1	0·7	4·8	2·9	0·3	15·2	20·7	13·7	21·1
	Erode	21	22	...	...	1	...	...	1	...	...	...	...	32	31	0·6	0·3	4·6	4·2	0·1	16·3	14·1	22·6	17·7
	Karur	3	4	1	...	...	...	1	...	...	...	...	...	30	26	0·6	0·5	14·6	0·7	0·2	22·7	15·9	22·3	27·5
Cuddapah ...	Cuddapah	101	63	2	1	2	1	6	3	...	...	...	...	316	298	6·2	0·06	42·4	10·0	0·9	97·4	23·7	49·6	18·2
Ganjam ...	Chicacole	78	76	...	1	...	...	4	4	1	...	...	...	181	139	2·6	0·3	6·7	9·8	0·6	37·5	17·3	26·8	20·2
	Berhampore ...	13	6	1	...	...	...	4	7	1	...	...	...	218	178	19·0	1·2	5·5	0·8	0·6	45·6	19·6	20·7	17·1
Godavari ...	Cocanada	43	32	1	2	...	...	3	2	...	...	...	...	213	200	10·1	14·1	3·8	4·2	0·4	55·9	27·5	28·9	29·9
	Rajahmundry ...	46	40	3	3	1	...	3	1	3	1	...	...	297	278	4·4	9·5	4·5	4·3	0·7	52·8	25·2	20·8	16·4
	Ellore	55	58	1	3	...	...	3	2	1	...	1	...	302	278	6·7	5·1	2·7	4·4	0·4	42·1	27·9	26·2	25·6
Kistna ...	Masulipatam ...	29	20	1	1	2	2	5	2	2	...	1	1	211	226	6·9	2·3	3·5	1·3	0·4	26·7	23·3	14·8	18·1
	Guntoor	52	39	2	1	4	10	...	3	...	...	...	...	168	140	...	2·1	3·6	5·0	1·1	29·0	22·6	18·1	22·4
Kurnool ...	Kurnool	368	287	2	1	3	2	4	2	...	...	...	...	222	130	13·7	0·1	36·5	25·6	0·5	90·3	7·8	33·2	36·2
Madras ...	Madras	2,273	2,269	31	36	6	2	149	121	2	...	...	...	4,353	4,156	0·2	1·1	12·5	11·4	0·8	47·5	37·9	37·4	27·9
Madura ...	Madura	441	297	4	4	8	3	9	12	1	...	...	...	704	676	1·2	0·7	5·4	14·1	0·7	48·8	31·5	48·7	56·7
	Dindigul	23	9	...	...	1	...	3	5	...	...	...	...	64	44	0·07	0·6	6·1	2·4	0·6	18·5	24·6	18·1	31·7
Malabar ...	Tellicherry	5	1	...	...	4	...	1	2	...	...	...	...	175	119	6·0	0·04	4·7	0·2	0·3	25·7	20·3	29·4	28·9
	Calicut	17	13	2	...	...	...	5	1	2	...	...	...	439	309	1·1	6·6	1·9	0·6	0·2	26·1	14·5	29·7	22·9
	Palghat	70	44	1	3	4	5	9	8	3	...	...	...	274	233	0·4	9·5	11·0	3·6	1·0	42·3	34·0	35·3	35·9
	Cochin	26	27	...	...	1	...	4	1	...	...	...	...	133	136	9·0	11·9	2·8	3·8	0·4	47·5	25·5	26·7	26·3
	Cannanore	14	8	...	...	...	...	1	...	1	...	1	...	152	132	0·3	0·03	2·4	0·7	0·09	12·6	14·7	21.6	28·2

Digitized by Google

Return showing the Births and Deaths registered in the Municipalities of the Madras Presidency during the Year 1878—(Continued).

Districts.	Municipal Towns.	Population.	Births. Class. Christians.	Births. Class. Mahomedans.	Births. Class. Hindus.	Births. Class. Other Classes.	Total Births. Males.	Total Births. Females.	Total Births. Total.	Deaths. Christians.	Deaths. Mahomedans.	Deaths. Hindus.	Deaths. Other Classes.	Causes of Death. Total Deaths. M.	Total Deaths. F.	Total Deaths. Total.	Cholera. M.	Cholera. F.	Small-pox. M.	Small-pox. F.	Fevers. M.	Fevers. F.
Nellore ...	Nellore	29,922	12	83	385	...	250	230	480	22	138	1,135	...	781	564	1,295	1	...	2	2	230	161
	Ongole	7,392	9	18	151	...	91	87	178	6	33	382	...	225	196	421	...	...	1	3	100	97
North Arcot ...	Vellore	38,022	27	107	517	..	326	325	651	46	165	727	...	473	465	938	...	...	7	13	188	117
	Wallajapet	12,103	1	20	222	...	121	122	243	...	22	296	...	151	167	318	1	2	4	7	27	21
Nilgiris ...	Ootacamund	9,982	123	48	184	...	157	198	355	157	69	227	...	252	201	453	4	3	7	5	66	56
	Coonoor	3,058	42	5	37	...	48	36	84	32	9	169	...	121	89	210	5	3	...	1	28	18
Salem ...	Salem	50,012	17	98	696	...	436	375	811	178	164	979	...	631	690	1,321	40	55	38	24	161	166
South Arcot ...	Cuddalore	40,290	26	31	773	...	423	407	830	27	25	923	...	570	405	975	28	20	82	62	143	118
	Chilambaram	15,519	...	6	172	...	99	79	175	1	13	314	11	187	152	339	21	11	35	30	83	58
South Canara.	Mangalore	29,712	129	71	417	2	311	308	619	127	157	373	...	368	289	657	...	...	...	...	113	97
Tanjore ...	Tanjore	52,175	108	55	1,223	...	743	643	1,386	69	32	1,167	...	629	639	1,268	7	4	30	24	111	109
	Combaconum	44,444	38	46	1,246	...	678	652	1,330	23	47	1,750	...	907	913	1,820	65	76	40	36	144	178
	Mayavaram	21,165	7	6	375	...	204	184	388	6	5	410	...	192	229	421	24	29	7	17	18	18
	Negapatam	48,525	56	328	618	...	482	520	1,002	77	449	951	...	794	683	1,477	95	79	35	31	178	140
	Mannargudi	17,703	4	9	463	3	259	220	479	3	12	442	4	246	215	461	21	20	16	15	40	39
Tinnevelly ...	Tinnevelly	21,044	1	23	520	...	311	233	544	2	40	876	...	481	437	918	4	10	10	12	50	45
	Palamcottah	17,945	65	49	441	...	283	272	555	54	40	502	...	296	300	596	12	8	9	15	16	19
	Tuticorin	10,565	212	17	172	...	232	169	401	156	18	249	...	226	197	423	1	...	11	3	36	46
Trichinopoly ...	Trichinopoly	76,530	176	208	1,122	...	763	738	1,501	248	173	1,378	...	964	835	1,799	78	56	32	23	152	121
	Srirangam	18,655	1	...	251	...	117	135	252	5	1	529	...	267	268	535	13	14	4	3	28	32
Vizagapatam...	Vizagapatam	32,191	17	77	757	...	486	365	851	31	95	1,295	8	796	633	1,429	70	37	20	21	93	88
	Bimlipatam	8,744	5	4	118	...	70	57	127	13	11	261	...	154	131	285	21	20	...	1	20	19
	Vizianagram	20,169	1	40	634	...	349	326	675	...	34	910	...	497	447	944	61	47	4	6	213	194
	Anakapalle	13,044	...	...	223	...	120	108	228	...	2	394	...	220	176	396	46	44	7	11	115	87
	Total ...	1,620,480	2,687	4,795	33,637	14	21,426	19,707	41,133	3,301	7,495	51,607	25	32,950	29,478	62,428	2,091	1,708	1,454	1,454	7,510	6,925

Return showing the Births and Deaths registered in the Municipalities of the Madras Presidency during the Year 1878—(Continued).

Districts.	Municipal Towns.	Deaths—(*Continued*). Causes of Death—(*Continued*). Bowel-complaints. M.	F.	Injuries. Suicides. M.	F.	Wounds. M.	F.	Accidents. M.	F.	Snake-bite. M.	F.	Killed by Wild Beasts. M.	F.	All other Causes. M.	F.	Ratio per 1,000 of Population. Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injuries.	Total Deaths.	Total Births.	Average Ratio for 3 years ending 1876 per 1,000 of Population. Deaths.	Births.
Nellore ...	Nellore	206	148	2	1	3	2	1	4	3	...	...	...	283	246	0·08	0·1	13·0	11·8	0·5	48·2	15·5	26·7	23·2
	Ongole	...	1	...	1	...	2	...	2	...	...	...	...	124	90	...	0·5	26·6	0·1	0·6	56·9	24·0	...	...
North Arcot ...	Vellore	97	90	1	2	...	...	1	1	...	...	...	...	230	241	...	0·5	6·7	4·9	0·1	24·6	17·1	36·9	32·5
	Wallajapet	29	14	1	...	...	1	1	6	...	...	1	...	87	116	0·2	0·9	3·9	3·5	0·8	26·2	20·0	34·4	34·9
Nilgiris ...	Ootacamund	36	28	1	...	1	...	1	1	...	...	...	...	136	113	0·7	1·2	12·2	5·9	0·4	45·3	35·5	30·1	36·9
	Coonoor	57	41	...	...	...	...	3	...	...	...	...	...	28	26	2·6	0·3	15·0	32·3	0·9	68·6	27·4	40·1	30·9
Salem ...	Salem	119	171	1	1	2	...	3	18	2	1	...	...	265	259	1·8	1·2	6·5	5·7	0·4	26·4	16·2	29·4	33·3
South Arcot ...	Cuddalore	106	58	...	...	...	...	5	...	4	...	...	...	202	152	1·1	3·5	6·3	4·0	0·2	24·1	20·6	21·7	27·8
	Chilambaram ...	13	14	...	...	1	...	4	3	...	...	...	...	30	36	2·0	4·1	9·0	1·7	0·5	21·8	11·4	19·1	17·5
South Canara.	Mangalore	47	38	...	...	...	...	16	5	...	...	...	...	192	149	...	...	7·0	2·8	0·7	22·1	20·8	28·7	20·1
Tanjore ...	Tanjore	161	228	2	1	1	1	3	5	3	...	1	...	310	267	0·2	1·0	4·2	7·4	0·3	24·3	26·5	29·7	29·8
	Combaconum ...	191	197	...	...	5	...	8	7	1	1	...	...	453	418	3·1	1·7	7·2	8·7	0·4	40·9	29·9	36·1	32·4
	Mayavaram	23	34	...	...	...	...	...	...	...	...	...	...	120	131	2·5	1·1	1·7	2·6	...	19·8	18·3	26·6	29·0
	Negapatam	153	119	1	...	2	...	6	4	2	...	...	...	322	310	3·5	1·3	6·5	5·6	0·3	30·4	20·6	30·2	28·1
	Mannargudi	51	35	...	1	...	...	1	...	1	2	...	...	116	103	2·3	1·7	4·4	4·8	0·2	26·0	26·4	27·7	30·7
Tinnevelly ...	Tinnevelly	83	97	2	2	...	...	6	2	...	...	...	...	326	269	0·6	1·0	4·5	8·5	0·5	43·6	25·8	42·8	36·6
	Palamcottah	81	68	...	1	1	1	1	2	...	...	...	...	176	186	1·1	1·3	1·9	8·3	0·3	33·2	30·9	34·2	37·8
	Tuticorin	106	95	1	...	...	...	2	...	...	1	...	...	69	52	0·09	1·3	7·7	19·0	0·3	40·0	37·8	58·9	49·9
Trichinopoly ...	Trichinopoly	343	258	6	1	...	...	9	10	1	...	...	...	341	368	1·7	0·7	3·5	7·8	0·3	23·5	19·6	26·2	24·8
	Srirangam	84	71	...	...	...	...	1	...	...	...	...	...	137	148	1·4	0·3	3·2	8·3	0·05	28·6	13·5	26·3	19·4
Vizagapatam...	Vizagapatam ...	159	114	3	6	...	...	1	1	1	...	...	...	449	366	3·3	1·2	5·4	8·3	0·3	43·5	26·4	30·6	31·3
	Bimlipatam	31	25	...	...	...	...	4	1	...	1	...	...	78	64	4·5	0·1	4·3	6·1	0·3	31·2	14·5	28·8	30·7
	Vizianagram ...	96	104	5	3	1	...	12	4	...	...	...	...	105	89	5·3	0·4	20·1	9·9	1·2	46·8	33·4	31·9	31·1
	Anakapalle	7	4	1	3	...	1	7	7	...	...	...	...	37	19	6·9	1·3	15·5	0·8	1·4	30·3	17·1	...	...
	Total ...	7,076	6,119	88	87	106	63	338	280	35	8	5	1	14,246	12,839	2·3	1·7	8·9	8·1	0·6	38·5	25·3	31·8	28·6

Digitized by Google

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

ORDER THEREON, 21st October 1879, No. 1537.

The Sanitary Commissioner premises his report with a brief notice of the meteorological history of the year.

2. The seasons of 1878, though they had not resumed their normal character, were much more favorable than in the preceding years 1876 and 1877. The south-west rains were late, but not deficient in quantity; the north-east rains in the Southern Districts, which mainly depend upon this monsoon for their agricultural operations, were almost a complete failure. In the Northern Circars, however, the rain supply from the north-east was excessive and accompanied with unusual atmospheric disturbance. The diagraphic tables of rainfall are of great value, but it is noticed that the diagrams are not given for the Nilgiris, Malabar, and South Canara. The Nilgiris further do not appear in the statement printed on pages 4 to 6. This is to be regretted, as the Nilgiris are virtually the trysting-place of the two great monsoons. The omission should be supplied in future reports. The Government also desire that an abstract diagraphic table, showing the average rainfall in the eastern, south-eastern, northern, central, and western districts should be furnished, similar to those now supplied.

3. Doctor Cornish's observations on the intimate relation between high prices, a high death-rate, and diminished fecundity among the people are highly interesting, and generally conclusive, but the Government are inclined to think that he has not given sufficient weight to the countervailing benefits which accrue from high prices, and the consequent increased demand for labor in districts which have still surplus food supplies, or which are fully engaged in the work of import or transport of the surplus supplies of other countries. Dr. Cornish has, elsewhere, himself pointed out how beneficial the effect of this great grain import trade was upon the health of the population at Madras, but he does not allow sufficiently for the effect of similar activity in the grain export trade of the Northern Circars (p. 17). Activity in the export trade induced, it is true, a rapid rise in prices to the point indicating mischief to the people, but this very rise supplied the agricultural population with the means of supporting their families and dependants, and also with funds for employing more labor; consequently landholder and laborer benefited, though the latter, when wages are not in kind, undoubtedly in a less degree. In large towns, however, there is little question that the rates of wages rose with the rise of prices. This was markedly the case in Madras. On the other hand it may be urged that the death-rate did rise in these districts, but on reference to the notes on cholera and small-pox later on in this report, it will appear that cholera prevailed in the Northern Circars, no less than 28,619 deaths from this cause being reported in the four districts constituting this division, whilst no less than 18,075 deaths from small-pox occurred in the Godavari alone—a death ratio of 11·4 per mille in a total death ratio of 37·4 per mille. This view is also borne out in great measure by a reference to the birth statistics, which Dr. Cornish very justly considers the most delicate and perhaps the safest test of the general health status of the people, Ganjam of the three districts not affected by famine alone showing a marked decrease on the average of the five years ending 1876, viz., 15·8 against 19·3; whilst the Godavari shows an increase 18·8 against 18·1, and Vizagapatam a variation of ·1 only. The Kistna certainly shows a decrease of 3·2, but the southern portions of this district were within the range of famine influences. Portion of this area also suffered severely from heavy storms which destroyed habitations and injured communications. Though undoubtedly, as Dr. Cornish pointedly puts it, "market prices rising above these rates (*i.e.*, 15 to 20 lbs. of rice, or 30 to 40 lbs. of other staple food grains for one rupee) after adverse seasons and a diminished rainfall means

Digitized by Google

mischief to the people,"—yet *all* these conditions should be fulfilled in one and the same district or area, to make the dictum true, and even then large seaports may have to be excepted; but the dictum cannot be accepted of the Presidency generally; the distress of the Carnatic was the *beneficium* of the Godavari.

With reference to the statement in paragraph 6 of the report that the revenue returns for 1877-78 showed a decrease of 4,000,000 acres in cultivation, the Government observe that the year appears to be a misprint for 1876-77. There was a considerable extension in the following year amounting to about $1\frac{1}{2}$ million of acres.

4. In speaking of the registration of vital statistics Dr. Cornish remarks that it has not retrograded, even if there are not signs of improvement. Registration is not yet required by law in villages, though it is in towns. The returns of the towns are therefore more satisfactory, but the Government are aware that Municipal Commissions do not as yet take that deep and intelligent interest in this department of their administration, which the importance of the subject imperatively demands. There is an improvement, however, in some of the leading Commissions, and the Government constantly impress upon all these bodies the great importance of the duty. Dr. Cornish does not forward diagraphic tables of the birth-rate. This should be done in future, and the table should combine the death and birth rates, the latter being distinguished by a red line. The Commissioner's remarks upon the effect of fecundity of the people produced by inadequate food supplies are full of interest. Besides the facts set forth by him the Government note that whilst in the famine districts the year 1878 opened with an average birth rate of 9·6 only, and did not reach the maximum of 14·8 until December following in non-famine districts, the year began with a birth-rate of 16·5, and reached its maximum 19·0 as early as July. These facts seem to indicate that the people in the famine districts only began to attain reproductive vigour after securing the winter crops, whilst in non-famine areas this fresh food supply made little or no change. Among the noteworthy facts under the death returns is the excess of deaths among males to those among females, viz., 110·9 males to 100 females against 122·6 to 100, respectively, in 1877. The proportion of births was 107·1 males to 100 females. The excess of deaths among males in Malabar is no less than 28·7. This is remarkable in a district a vast majority of whose population are polyandrists. The birth-rate on the other hand shows an excess of males over females of 8·2 only. The proportionately low death-rates among Native Christians and Mussalmans deserves attention. Besides the causes noted by the Commissioner the greater knowledge of medicine among Mohammedans and the greater number of medical institutions and persons possessing some medical knowledge among Native Christians may be remarked. The small number of deaths among infants is noteworthy, being only 63,558 against 109,849 in 1877.

5. Deaths from cholera show a marked decrease, being 47,167 against 357,430 in 1877. When the year opened the disease existed in eighteen districts; at its close in twelve only. The Government regret to note that knowledge of the nature of the disease has not advanced—in Dr. Cornish's words, "the great epidemic has come and gone, and left us practically but little wiser for the event." In Vizagapatam the revival of the epidemic towards the close of the year appears to be due in part to the march through it of a regiment suffering from the disease. In the Godavari the ravages of the disease were terrible. The Commissioner attributes this in part to distress among the poor. This may be true, though the Government believe that it is probable also that other causes were at work, among which may be noted the intercourse between this district and the Deccan, and the prevalence of small-pox which must unquestionably have reduced those that escaped death thereby to so low a state of health that they were especially exposed to the cholera infection. The non-occurrence of a single case of cholera in Guntoor with a population of 17,984 when the epidemic was prevalent in the district, and in the Guntoor Taluk, causing 6,231 deaths in the former and 237 in the latter, deserves careful investigation. The medical officer of the station should report specially. The outbreak in Madras is thought to be due to contaminated drinking-water. It began among the East Indian community. The prevalence of cholera in Combaconum and Negapatam towns is attributed in some measure by the Commissioner to their insanitary state. The Commissioners should make every effort to remove such a stigma from the towns committed to their care, and thus guard their fellow citizens from this great enemy of

Digitized by Google

human life. The Commissioner seems to make out a good case against the Humpi festival as the cause of the re-appearance of the disease in the Ceded Districts. The inference is that the sanitary regulation of such gatherings cannot be too strict. The occurrence of the disease in Ootacamund and Coonoor seems due to the arrival of infected persons from the low country, but local insanitary conditions cannot be ignored.

6. The Government regret to note the large number of deaths due to small-pox, 56,360, the highest figure recorded, with the exception of that in 1877, since 1866. The analysis of the figures given in paragraph 48 of the report is not encouraging, considering the increasing activity of the Vaccine Department. For the six years ending 1871 the average deaths were 22,477, and for the six years ending 1878 (the exceptional year 1877 being excluded) the average was 40,654. After making every allowance for improving registration the position of affairs is by no means satisfactory, and seems to demand the most serious attention. It might have been expected that the results in Municipalities, where greater attention is and can be given to the subject, would have compared favorably with those in rural tracts, but although this is the case in regard to the proportion of the population vaccinated, there is as yet no marked difference in the protection of the people from the ravages of the disease. Thus whilst in Municipal towns there were vaccinated thirty-five persons in 1,000 against an average of 21 in the same number in the preceding five years, in the rural tracts only 15 persons in a thousand were vaccinated against an average (omitted in the report) of probably not above 9 in a thousand in the preceding five years. But as to protection, it appears that in 1878 there was hardly any difference in the death-rate from small-pox, the ratio per mille being 1·7 (deaths 21,574) in Municipalities against 1·9 (deaths 153,786) in the rural circles. But in the matter of expense, that the cost per case in Municipalities was Rupee 0·18 against Rupee 0·26 in the country. Dr. Cornish remarks that "it may be safely said that more than two-thirds of the small-pox mortality occurs in children under twelve years of age." If this is so, 37,570 out of the 56,360 deaths from this cause were among this section of the population, which probably exceeds eleven millions, taking the census figures of 1871. Out of a total death return of 810,000 no less than 237,000 were among children under twelve years. Consequently $\frac{237,000}{37,500}$, or about one-sixth of these children died of small-pox. But it is of importance to know what proportion of this section of the population may have been vaccinated. Assuming that approximately two-thirds of the persons vaccinated are under twelve years of age, taking the returns of the last eight years as data, and allowing that one-third of the children vaccinated in the period have died, and half this proportion passed by age out of the section, it may be estimated that there are not less than one million and-a-half vaccinated persons among the children under twelve years (and this estimate is probably too low). In other words about one-seventh portion of the juvenile population is protected by vaccination, and thus the death-rate from small-pox among the remaining six-sevenths (or 9,400,000) was probably not less than 4 per mille. Considering that whilst the births numbered 348,657 only 44,400 children under one year were vaccinated, this sad result is not to be wondered at. Vaccination among males is largely in excess of that among females, viz., 291,902 against 228,908. It is surprising under these circumstances to find the deaths from small-pox among males were considerably in excess of those among females, viz., 29,384 against 26,976. One would be glad to hear any explanation the Commissioner may have to offer in his report for the current year.

7. The Government do not doubt that the Commissioner is right in his estimate of the steady increase in the vaccinated proportion of the population, and believe that in some localities prejudice against the operation no longer exists. They are disposed to think that the extension of the benefits of vaccination now depends rather upon an increase of activity among the vaccine agents than upon the decrease of prejudice among the people. This fact has been noticed by more than one Revenue officer of experience. It seems, therefore, more than ever necessary to secure efficiency and activity in the vaccine agency. The Commissioner's remarks upon the inferior attainments and morale of many of the Deputy Inspectors demand consideration.

8. The principal defect in the present arrangements for the health of the country appears to be the want of adequate superior supervision of vaccine operations, of the

Digitized by Google

minor medical institutions which are springing up rapidly throughout the rural districts, and of the sanitary operations of local bodies. These branches of administration are allied and their ends may be most successfully attained by a single agency working in concert with local administrative bodies. The inspectional agency under the Sanitary Commissioner is manifestly quite inadequate. In the Bombay Presidency with a population of little more than half that of Madras there are seven Superintendents of Vaccination alone who are Commissioned Medical Officers. The question is how an increased agency is to be provided, no aid being obtainable from Provincial or Imperial Funds. Recourse must be had to Local Funds if an increased establishment is to be provided. The Government consider that this should now be done, and that the result will be to the advantage of the local bodies without throwing an appreciable charge upon them. At present these bodies, Local and Municipal, contribute half per cent. on income towards the Medical College, from which they derive but an indirect advantage. A similar contribution, or Rs. 35,000, will allow of the creation of three additional Deputy Sanitary Commissioners and Inspectors of Vaccination, besides relieving Provincial Funds of the charge of the present single Deputy, Dr. Laing, whose services being entirely for local objects should on principle be paid for by Local Funds. The Government accordingly resolve to direct the Commissioner in communication with the Board of Revenue to draw up a scheme for the approval of Government, providing for the addition of three assistants to his staff, fixing their divisions and defining their duties. They should work in concert with Local Boards, and be members of all such within their divisions. The Government suggest that the divisions should be five in number, the Sanitary Commissioner retaining direct control of the central division himself. The divisions might correspond with those of the Superintending Engineers. The salaries and establishments might be fixed as follows:—

Approximate income Rupees 75,00,000.

		RS.	
1 Deputy	.. ..	800	(Dr. Laing).
Clerk	.. ..	30	
1 Deputy	.. ..	650	
Clerk	.. ..	30	
1 Deputy	.. ..	575	
Clerk	.. ..	30	
1 Deputy	.. ..	500	
Clerk	.. ..	30	
	Total ..	2,645	

or 31,740 rupees, leaving 3,260 rupees for travelling and contingent charges, which would probably amply suffice.

9. The Government agree with the Commissioner that Deputy Inspectors of Vaccination should receive batta when travelling. The subject is under consideration. They also consider that officers in charge of dispensaries should aid in vaccinating the patients and other residents in the neighbourhood. The Surgeon-General will impress this upon all such officers, and require a fair number of operations to be performed in all dispensaries.

10. In Section VI of the report the Commissioner notes some of the chief proceedings of the year in which his department was concerned. Generally the Government regard the year's history as one of progress, though as regards sanitation in particular it is still in an initiatory stage. They trust, however, that the introduction of the scheme above sketched will in due course produce more rapid advancement in measures calculated to promote the health and well-being of the people.

11. Dr. Cornish appends to his report a valuable paper on the influence of famine on growth of population which will doubtless receive the attention it will deserve from the Famine Commission to whom it has been communicated.

(True Extract.)

H. B. GRIGG,
Acting Under Secy. to Govt.

Digitized by Google